

P335

**Comment Form/Formulario Para Comentarios**

**Cabrillo Port LNG Deepwater Port—Revised Draft EIR**  
**Puerto de Aguas Profundas de LNG en el Puerto de Cabrillo—Borrador Revisado del EIR**

To receive a copy of the Final EIS/EIR, you must provide your name and address.  
 Para recibir una copia del EIS/EIR Final, por favor proporcionar su nombre y dirección.

Name (Nombre): Elaine Navarro

Organization/Agency (Organización/Agencia): \_\_\_\_\_

Street Address (Calle): 333 EL DORADO CT

City (Ciudad): VENTURA

State (Estado): CA Zip Code (Código Postal): 93004

email address (dirección de correo electrónico):

daneldorado@yahoo.com

**Please provide written comments on the reverse  
 and drop this form into the comment box.**

**Proporcione por favor los comentarios escrito en el revés y colóque esta forma  
 en la caja del comentario.**

**You may also address any written comments  
 to the attention of:**

**Dwight E. Sanders**  
 California State Lands Commission  
 Division of Environmental Planning and  
 Management  
 100 Howe Avenue, Suite 100-South  
 Sacramento, CA 95825  
**Include the State Clearinghouse number:**  
**2004021107**

**Comments may also be submitted via email  
 to: BHPRevisedDEIR@slc.ca.gov**

**Usted puede dirigir también cualquier  
 comentario escrito a la atención de:**

**Dwight E. Sanders**  
 California State Lands Commission  
 Division of Environmental Planning and  
 Management  
 100 Howe Avenue, Suite 100-South  
 Sacramento, CA 95825  
**Incluir el número de State Clearinghouse:**  
**2004021107**

**Los comentarios también se pueden enviar  
 por correo electrónico a:**  
**BHPRevisedDEIR@slc.ca.gov**

**All comments must be received  
by 5 p.m. Pacific Time, May 12, 2006**

**Todos los comentarios debe ser recibido  
por 5 de la tarde, hora Pacifico, el 12 de mayo de 2006**

Comments/Comentarios (Use additional sheets if necessary/Puede utilizar hojas adicionales si es necesario):

*I'm against the L N G P roject.*

P335-1

*It is too close to people.*

P335-2

*It should be in an isolated  
area.*

No action will be taken until the environmental review process is completed.

No se tomará ninguna acción hasta que el proceso de revisión ambiental se haya terminado.

P335-1

Your statement is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

P335-2

Section 3.3.7 contains information on the specific California locations considered in the alternatives analysis. The deepwater port would be 12.01 nautical miles (13.83 miles) offshore, as shown on Figure ES-1.

To view the responses to this letter, go to "Index--Read this First" and select "2006 Letters--Form Letter."

April 19, 2006

Dwight Sanders  
State lands commission,  
100 Howe Avenue  
Suite 100 South  
Sacramento California 95825-8202

Re: Stop Cabrillo Port LNG

Dear Mr. Sanders,

Please stop Cabrillo port LNG industrial plant from progressing any further in the permit process. California law prohibits industrial intrusion on highly scenic areas. The last remaining wild areas on the Southern California Coast will be permanently despoiled if this industrial plant is installed. In fact over 10 national parks, national recreation areas, state, city and county parks will be despoiled. This would forever impact the quality of life of the areas residents and negatively impact the millions of visitors who come to hike and enjoy the seashore. In addition, federal and state governments own studies show that this project would:

- result in both short term and long term adverse impacts to the coast and it's residents.
- Increase smog levels (tons of pollutants spewing directly upwind from our houses, beaches and hiking trails.
- contain 14 story high pollution spewing industrial towers with lines of support ships which forever will be our new horizon. This towers will be brightly lit at night being a 24 hour eye sore.
- harbor the possibility of a 14 mile wide explosive flash fire due to an accident of terrorist attack.
- be visible from all elevations in malibu from downtown Malibu all the way to Port Hueneme.
- require a "security zone" of 2.3 miles around it. (to protect from terrorism, accidents etc) which is in the same shipping channel where 10,000. container ships and oil tankers use annually.

There are many more negative impacts than the above "official" ones disclosed by the federal and state study.

PLEASE do not allow this to go forward. We, the citizens of Southern California will fight this project until it is derailed. Our money and time can be spent on projects that truly will improve the quality of life in Southern California rather than just provide an opportunity for foreign Companies to sell us gas that they and we do not need.

Sincerely,

  
MICHAEL NEAL

11920 INGLEWOOD AVE #7  
HAWTHORNE, CA. 90250



# VOICES OF SUPPORT FOR CABRILLO PORT

V234

V234-1

2006/V234

V234-1

Your statement is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

## *The Right Project, in the Right Place, at the Right Time*

- California Needs LNG to "keep prices in check" and "costs low"**

"Energy prices continue to go up double digits year after year and senior citizens can't afford it. California's seniors need Cabrillo Port to bring liquefied natural gas into the state and help keep prices in check and home heating and cooling costs low."

— Jack Litvay, State President, Congress of California Seniors and National President Emeritus, Labor Council for Latin American Advancement, AFL-CIO
- Cabrillo Port Provides the "strongest commitment to ensure public safety"**

"With the revised draft EIR, state and federal regulators have determined what we already know: that Cabrillo Port and liquefied natural gas is safe. Cabrillo Port provides the strongest commitment to ensure public safety and protect our local community. Now is the time to engage in a constructive and reasoned dialogue regarding this project and how it helps meet our energy needs today and in the future."

— Tom Gazy, Assistant Police Chief (Retired), Oxnard Police Department
- Liquefied Natural Gas is Needed to "protect our quality of life"**

"Liquefied natural gas is needed to provide a diversified, reliable and affordable source of energy to our local community and state in order to protect our quality of life and the vitality and health of our economy. A project such as Cabrillo Port is an answer to our increasing energy needs."

— Bill Buratto, President and Chief Executive Officer, Ventura County Economic Development Association (VCEDA)
- Cabrillo Port is "the right answer at the right time"**

"It's a fact: domestic natural gas supplies are dwindling and California needs new sources of affordable, reliable and safe natural gas to operate our businesses, warm our homes and cook our food. As the largest union association in the area representing 25 unions and thousands of hard-working laborers, the Tri-County Building and Construction Trades Council supports BHP Billiton's Cabrillo Port because it will bring local, union jobs to our area and provide many direct benefits to our local economy. Cabrillo Port is the right answer at the right time."

— Steve Warner, Executive Secretary-Treasurer, Tri-County Building and Construction Trades Council, AFL-CIO
- Cabrillo Port is a "win-win situation" for Ventura County and California**

"Cabrillo Port is a win-win situation for Ventura County and California. It will provide everyone with a more abundant, reliable and affordable supply of clean-burning natural gas for our businesses and working families while protecting our environment and coastline."

— Don Fagundes, President and Chief Executive Officer, Ventura County Taxpayers Association
- Cabrillo Port is the "safest, most reliable and most environmentally friendly project out of all proposals today"**

"Due to its offshore location away from major population centers and international shipping lanes, Cabrillo Port has unique safety characteristics not shared by other LNG projects under consideration throughout the United States. Cabrillo Port is also environmentally cleaner and will discharge far less emissions than traditional cargo ships currently calling in California ports. As the trade association representing thousands of merchant officers and mariners nationwide who sail on freighter, passenger and tanker vessels worldwide, MEBA strongly supports Cabrillo Port as the safest, most reliable and most environmentally friendly project out of all proposals today."

— Al Camello, Los Angeles Agent, Marine Engineers' Beneficial Association (MEBA), AFL-CIO
- Cabrillo Port is a "balanced and thoughtful solution"**

"As the voice for local businesses since 1923, the Oxnard Chamber of Commerce endorses BHP Billiton's Cabrillo Port. We need a reliable, safe and clean natural gas supply for our businesses and future business development. We believe Cabrillo Port is a balanced and thoughtful solution to meet the needs of our economy while protecting the environment and our quality of life here in Oxnard. We welcome BHP Billiton to the Oxnard community."

— Nancy Lindholm, President and Chief Executive Officer, Oxnard Chamber of Commerce
- Cabrillo Port Will Have "no measurable impacts to our shoreline"**

"To further demonstrate its commitment to the environment, BHP Billiton's Cabrillo Port will use air instead of seawater to convert LNG to natural gas, thus avoiding impacts to marine life. Cabrillo Port will also run on natural gas to reduce project emissions. Because of the facility's distance from land, there will be no measurable impacts to our shoreline. I am confident that Cabrillo Port is the best choice to bring liquefied natural gas to Oxnard, Ventura County and California."

— Thomas McCormick, President, Proteus Seafarms
- Cabrillo Port is the "safest alternative around" and "is needed, here and now"**

As a mother of 5 with 8 grandchildren, the safety of my family is my number one priority. Because Cabrillo Port is a temporary facility located more than 21 miles offshore from Oxnard, it is the safest alternative around to bringing a clean, reliable supply of natural gas to California that we can use everyday for cooking our food and heating our homes. Cabrillo Port is needed, here and now."

— Alicia Flores, Director, La Hermandad Mexicana Transnacional de Oxnard
- Cabrillo Port Incorporates "state-of-the-art pipeline security and safety features"**

"As someone who's worked in the distribution, customer service and materials management arena for the natural gas business for over the past 35 years, I support Cabrillo Port because it incorporates state-of-the-art pipeline security and safety features to efficiently and safely deliver needed natural gas supplies to Oxnard, and throughout the Southern California region."

— Chuck Baumag, Supervisor (Retired), Southern California Gas Company
- Cabrillo Port Will Be Located "well outside of the region's shipping lanes"**

"Cabrillo Port will be located about 14 miles offshore, making it practically invisible. The project's planners have put safety and maritime trade first by locating Cabrillo Port well outside of the region's shipping lanes, thereby not disrupting port traffic and cargo operations."

— Michael Fullagar, General Manager, Bruso-Tug & Barge, Inc. at the Port of Huamantla
- BHP Billiton is a "globally responsible corporate citizen"**

"BHP Billiton is a globally responsible corporate citizen that has a solid record of giving back to the local communities in which it operates. The positive impacts that Cabrillo Port will provide to Oxnard and Ventura County are endless, including local, high-paying jobs and a stable source of energy to keep natural gas affordable. Furthermore, given that it is located offshore and more than 21 miles from Oxnard, I have confidence in the safety and integrity of Cabrillo Port for our community."

— Sylvia Muñoz-Schrago, Local Small Business Owner
- Cabrillo Port is the "top choice for our community"**

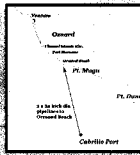
"As residents of Oxnard for more than 30 years, we have been very happy here and love our home and community. We encourage everyone to read the revised draft EIR and find out for themselves the tremendous positive impact that BHP Billiton and Cabrillo Port will have on our city and region. Cabrillo Port's stringent safety features, environmental standards and proven technologies, among many other reasons, make it the top choice for our community. We hope common sense will prevail and that Cabrillo Port will be approved as soon as possible."

— Galen and Joyce Fitzgerald, Oxnard Residents for 30 Years
- Cabrillo Port Brings "new jobs" and Expands "California's energy portfolio"**

"There are many important positive impacts that the Cabrillo Port LNG project brings including the creation of new jobs in California, and the expansion of California's energy portfolio which will help to stabilize energy prices. The California Black Chamber of Commerce and local chamber members look forward to creating new partnerships with BHP Billiton to expand growth and economic development in this region of the state."

— Aubrey Stone, President and Chief Executive Officer, California Black Chamber of Commerce

## KNOW THE FACTS



Cabrillo Port will be a safe, secure, and environmentally friendly project that will bring new jobs and economic development to the Oxnard area.

The facility will be located far offshore where there are no other major hazards.

Clean burning natural gas is essential for working our food, warming our homes, and powering our industries in California.

Visit [www.cabrilloport.com](http://www.cabrilloport.com)  
Call Kathy Hays at (805) 884-2788 or  
800-451-2788

Cabrillo Port - BHP Billiton  
Oxnard, CA 93033

P249

To view the responses to this letter, go to "Index--Read this First" and select "2006 Letters--Form Letter."

April 19, 2006

Dwight Sanders  
State lands commission,  
100 Howe Avenue  
Suite 100 South  
Sacramento California 95825-8202

Re: Stop Cabrillo Port LNG

Dear Mr. Sanders,

Please stop Cabrillo port LNG industrial plant from progressing any further in the permit process. California law prohibits industrial intrusion on highly scenic areas. The last remaining wild areas on the Southern California Coast will be permanently despoiled if this industrial plant is installed. In fact over 10 national parks, national recreation areas, state, city and county parks will be despoiled. This would forever impact the quality of life of the areas residents and negatively impact the millions of visitors who come to hike and enjoy the seashore. In addition, federal and state governments own studies show that this project would:

- result in both short term and long term adverse impacts to the coast and it's residents.
- Increase smog levels (tons of pollutants spewing directly upwind from our houses, beaches and hiking trails.
- contain 14 story high pollution spewing industrial towers with lines of support ships which forever will be our new horizon. This towers will be brightly lit at night being a 24 hour eye sore .
- harbor the possibility of a 14 mile wide explosive flash fire due to an accident of terrorist attack.
- be visible from all elevations in malibu from downtown Malibu all the way to Port Hueneme.
- require a "security zone" of 2.3 miles around it. (to protect from terrorism, accidents etc) which is in the same shipping channel where 10,000. container ships and oil tankers use annually.

There are many more negative impacts than the above "official" ones disclosed by the federal and state study.

PLEASE do not allow this to go forward. We, the citizens of Southern California will fight this project until it is derailed. Our money and time can be spent on projects that truly will improve the quality of life in Southern California rather than just provide an opportunity for foreign Companies to sell us gas that they and we do not need.

Sincerely,

*Judy Newman*  
20771 Big Rock Dr.  
MALIBU, CA 90265

MR. Sanders, <sup>Reference #</sup> 2004021107 P381

We are very concerned about the proposed BHP Billiton Cabrillo LNG Deepwater Port, off our precious coast! The Channel Islands National Marine

Sanctuary deserves better safeguarding!

Please consider more thoroughly, the safety of our citizens & wildlife. Thank you.  
- CHRISTY NEWQUIST  
- Christy Newquist

P381-1

The FSRU would be located outside of the current boundary of the Channel Islands National Marine Sanctuary (CINMS) and vessels associated with Cabrillo Port operations would not be expected to enter the CINMS. Sections 4.7.1.4, 4.13.2.2, and 4.20.1.5 discuss the potential expansion of the CINMS boundary, which is not proposed at this time. Sections 4.7.4, 4.15.4, 4.16.4, and 4.18.4 describe potential impacts on the marine environment and proposed mitigation measures to reduce those potential impacts.

P381-2

Sections 2, 4.7.4, 4.8.4, and Appendix C discuss these topics in more detail.

P381-1

P381-2

P447

To view the responses to this letter, go to "Index--Read this First" and select "2006 Letters--Form Letter."

April 19, 2006

Dwight Sanders  
State lands commission,  
100 Howe Avenue  
Suite 100 South  
Sacramento California 95825-8202

Re: Stop Cabrillo Port LNG

Dear Mr. Sanders,

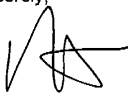
Please stop Cabrillo port LNG industrial plant from progressing any further in the permit process. California law prohibits industrial intrusion on highly scenic areas. The last remaining wild areas on the Southern California Coast will be permanently despoiled if this industrial plant is installed. In fact over 10 national parks, national recreation areas, state, city and county parks will be despoiled. This would forever impact the quality of life of the areas residents and negatively impact the millions of visitors who come to hike and enjoy the seashore. In addition, federal and state governments own studies show that this project would:

- result in both short term and long term adverse impacts to the coast and it's residents.
- Increase smog levels (tons of pollutants spewing directly upwind from our houses, beaches and hiking trails.
- contain 14 story high pollution spewing industrial towers with lines of support ships which forever will be our new horizon. This towers will be brightly lit at night being a 24 hour eye sore.
- harbor the possibility of a 14 mile wide explosive flash fire due to an accident of terrorist attack.
- be visible from all elevations in malibu from downtown Malibu all the way to Port Hueneme.
- require a "security zone" of 2.3 miles around it. (to protect from terrorism, accidents etc) which is in the same shipping channel where 10,000. container ships and oil tankers use annually.

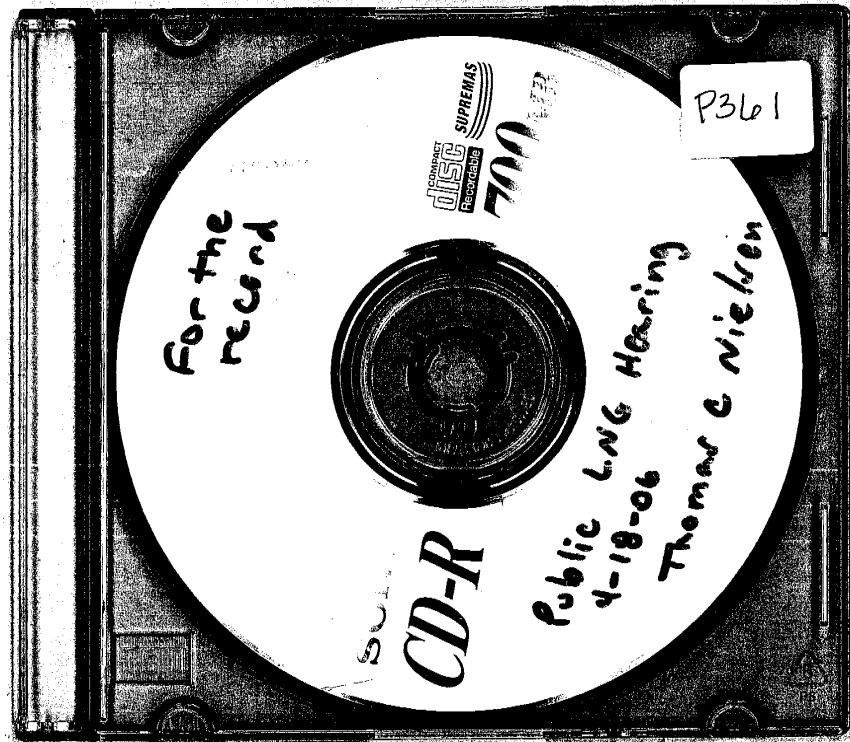
There are many more negative impacts than the above "official" ones disclosed by the federal and state study.

PLEASE do not allow this to go forward. We, the citizens of Southern California will fight this project until it is derailed. Our money and time can be spent on projects that truly will improve the quality of life in Southern California rather than just provide an opportunity for foreign Companies to sell us gas that they and we do not need.

Sincerely,



RANDI NEWTON  
8117 Manchester Ave  
Playa Del Rey, CA  
90293



## P361-1

Thomas C. Nielsen submitted a CD with seven files to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The files on the CD are included as 2006 Comment Letter Attachments P361-A01, P361-A02, P361-A03, P361-A04, P361-A05, P361-A06, and P361-A07. Thank you for the information.



## Economic Cost of Power Disturbances Runs High and Deep

As the U.S. power system grows increasingly vulnerable to capacity constraints and transmission congestion—a trend exacerbated by historically low patterns of investment in electricity infrastructure—consumers in some parts of the country already are suffering the effects during periods of high demand.

Capacity limitations in several regions, coupled with power disturbances at the customer level, can lead to economic losses that cascade through the economy, causing losses for industrial customers and their suppliers alike. Although these losses are large and varied, until recently there has been very little data to quantify the economic impact comprehensively.

Typically, the economic losses from power disturbances are diverse in nature and extend well beyond the immediate point of impact. For example, a nearly imperceptible one-second sag in one of the microprocessors running a paint gun in an automobile plant can ruin the finish on one or more cars and disrupt an assembly line. Likewise, a momentary disruption at a semiconductor fabrication plant making microprocessors can ruin an entire month's production, and possibly the equipment itself.

"A voltage disturbance that lasts for a blink of an eye can shut down a manufacturing plant for an entire day," says Michael Howard, president of EPRI PEAC Corporation. The Knoxville, Tennessee-based member of the EPRI family of companies is the front-line response team for helping manufacturers understand, diagnose, solve, and prevent power quality problems.

Howard notes that continuous, 60-Hertz alternating current adds up to 1.86 billion cycles over the course of a year. "A disruption of just one of those cycles—lasting two hundredths of a second—can shut down a plant," he explains. "While blink-of-an-eye disturbances formerly had no effect on end users, the tremendous increase in digital electronics has resulted in end-user systems that are ultra-sensitive to the least electrical disturbance, which can shut down a plant or production line."

Economic losses from power disturbances include production downtime, loss of raw material, damaged product and equipment, disrupted supply chains, even bankruptcy. In a few industries, such as information and financial services, concerns over power reliability are driving "bet-the-company" investment decisions. At one new NASDAQ center in Connecticut, for example, power-conditioning equipment accounted for nearly two thirds of the cost of the entire facility. A similar cost ratio has been seen at a new Internet facility in Miami.

### Better handle on cost

In an effort to get a more quantitative handle on the economic loss from power reliability and power quality problems of all types, EPRI-family company Primen recently surveyed key industries and extrapolated the results for the economy as a whole. Substantially higher than historic cost estimates, the survey results indicate that the aggregate economic loss has climbed to more than \$100 billion per year, or more than 1% of U.S. Gross Domestic Product (GDP).

P361-A01-1

### P361-A01-1

This is one of seven files Thomas C. Nielsen submitted on a CD to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The other six files on the CD are included as 2006 Comment Letter Attachments P361-A02, P361-A03, P361-A04, P361-A05, P361-A06, and P361-A07.

## Giving India the Power to Move Forward

By Subir Gokarn

The world continues to marvel at India's growth story -- and with good reason. The economy has delivered roughly 8% annualized jumps in gross domestic product over a three-year period that started in April, 2003. Indian stock prices are soaring. Savings and investment are at record levels. And though the Indian government confronts some real fiscal challenges going forward, a strong balance of payments surplus and some \$140 billion in foreign exchange reserves provides a nice buffer against any conceivable external shocks such as a sudden slowdown in the global economy.

The real challenge, however, to Prime Minister Manmohan Singh's government's economic record really lies at home. India's dynamic growth numbers would even be more stellar if the country's archaic power grid and transportation infrastructure networks were brought up to snuff. **India simply doesn't generate enough electricity to meet current demand -- a situation that is depressing growth.**

Its highway system is also grossly underdeveloped. The country's ports are far less productive than those in China or Singapore. And the biggest complaint, by far, among foreign executives working out of India is the enormous difficulty of moving goods and parts around the country.

**POWER PLAY.** If India is going to advance to Chinese growth rates of about 10%, a goal set by India's Harvard-educated Finance Minister Palaniappan Chidambaram, and continue to improve the living standards of ordinary Indians, some real progress must be made. Many years of reduced funding from government, in an environment that simply did not facilitate private investment in critical infrastructure projects, has led to a huge mismatch between demand and supply in these sectors.

India's latest budget for the new fiscal year sets out to change that. Total infrastructure spending on roads, ports, telecommunications, and power grids over the fiscal year that began on Apr. 1 is set to increase more than 20%. Money will be spent on, among other things, rolling out power connections in rural areas, five big power project contracts, road development, and a feasibility study for a deep-water port in West Bengal.

Given India's robust economic growth, now is the time to make such big-ticket investments. But money alone will not solve India's infrastructure woes in the long term. State governments, which wield plenty of political autonomy in India, have to loosen their grip on the infrastructure assets they control. For instance, due to heavy regulation at the local level, it is very difficult in India to develop an efficient national electricity power grid that would reallocate surplus in some regions to others facing shortages.

These reforms face enormous resistance from employees of state-owned power systems and consumer groups that feel threatened by economic reform. This could well prevent the good intentions in the budget from translating into action. India's government should somehow neutralize the resistance and ensure that state governments stay on the reform track.

**GOOD INTENTIONS.** Unfortunately, there isn't enough evidence of these control changes in the budget. As a consequence, even as the budget has succeeded in pointing in the right direction, it hasn't yet laid out the incentives necessary to get moving. One can only hope for the reforms to be put in place soon. If they're not, an otherwise robust and sustainable growth process could literally run out of power.

India aspires to lift millions more of its citizens out of poverty, develop its manufacturing sector, and evolve into a 21st century economic power. It surely has the potential to get there.

**But short-term, it must focus on the essential business of making sure it has the energy, roads, and ports to do so.**

P361-A02-1

P361-A02-1

This is one of seven files Thomas C. Nielsen submitted on a CD to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The other six files on the CD are included as 2006 Comment Letter Attachments P361-A01, P361-A03, P361-A04, P361-A05, P361-A06, and P361-A07.



## LNG: County Caught in the Crossfire

([http://www.venturacountystar.com/vcs/county\\_news/article/0,1375,VCS\\_226\\_4039003,00.html](http://www.venturacountystar.com/vcs/county_news/article/0,1375,VCS_226_4039003,00.html))

### Part 1: Search for energy answers

#### Extreme claims fuel debate over gas imports

By John Krist and Tom Kisken  
August 28, 2005

Ventura County residents face a choice between freezing in the dark and dying in a fireball. Or so you might conclude from the arguments framing the fight over liquefied natural gas imports into Southern California. For nearly a year, since Ventura County was swept up by the nationwide resurgence of interest in LNG, the debate has bounced like a pinball between scenarios of crisis and catastrophe.

Proponents of LNG imports, such as energy companies and business groups, warn that California's economy will be crippled unless the state taps new gas supplies. Opponents counter that LNG tankers and terminals, handling flammable natural gas that is shipped as a super-cooled liquid, would unnecessarily expose coastal residents to mortal danger.

Both arguments contain elements of truth, but the debate over LNG is about much more than public safety and energy resources, and it reaches well beyond the borders of Ventura County.

The fight over LNG will decide the fate of billions of dollars in investment by energy companies. The debate raises questions about the reliability of the nation's fossil-fuel resources and how best to regulate them.

The struggle over LNG imports will help determine whether California and the nation chart a new energy course, or follow the same path with gas in the 21st century that they did with oil in the 20th: increasingly dependent on foreign supplies.

It also will influence the fate of scores of communities and the people who call them home, not only Oxnard and Malibu, unlikely front-line comrades in California's current battle over LNG, but also blue-collar suburbs in Massachusetts, where people ponder the consequences of a terrorist attack on Boston



James Glover II / Star staff  
Natural gas coming from either Crystal Energy's Platform Grace or BHP Billiton's Cabrillo Port would be piped to this Southern California Gas Co. facility in Somis. Each terminal would be capable of delivering 800 million cubic feet of gas to shore each day. Vidal Cervantes, above, works at the Somis facility.

P361-A03-1

P361-A03-1

This is one of seven files Thomas C. Nielsen submitted on a CD to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The other six files on the CD are included as 2006 Comment Letter Attachments P361-A01, P361-A02, P361-A04, P361-A05, P361-A06, and P361-A07.

Harbor. The conflict touches bayou towns on Louisiana's Gulf Coast, where families clamor for the jobs LNG brings; and rural outposts in Wyoming, where residents worry the nation's growing appetite for energy will doom wildlife, ruin the landscape and forever change the region's culture.

The LNG debate also fans the flames of a dispute over the balance of governmental power that traces its roots to the birth of the nation. It makes people ask whether coincidence or something more sinister is preponderance of LNG terminal proposals near working-class communities, many of them poor, some of them with large populations of ethnic or racial minorities.

"I think these are communities where people are desperate," said former Oxnard Mayor Manny Lopez, suggesting leaders of LNG companies have searched for sites where the people won't mobilize and fight back. "I think realistically we have been targeted."

Industry leaders say the only thing they're targeting are locations that offer congenial sea conditions and access to existing pipeline networks.

"It doesn't get any better than this," said Crystal Energy President Paul Soanes, referring to the Santa Barbara Channel where his company wants to operate a station called Clearwater Port.

If Soanes wins, and LNG comes to Ventura County, Shirley and Larry Godwin will leave. They moved to Oxnard 43 years ago and raised their three children there, but they believe that a home with LNG isn't really home at all.

"We know too much. We know about the earthquakes. We know what can happen," said Shirley Godwin, worrying not only about LNG spills but also about welcoming an industry that could alter Oxnard's character. "It'll be known as an industrial area that has LNG terminals. We'll lose everything."

The divisions between the two sides are stark. Sorting through the conflicting claims of activists and industry promoters is not easy, but it's the task some participants in the debate encourage as a way of making sensible decisions about the future of California and the nation.

### **Energy crisis versus catastrophe**

According to the companies hoping to build LNG import terminals off the Ventura County coastline, California will confront disaster unless it takes immediate steps to boost its energy supply. Consumer prices will soar, electricity blackouts will occur, and industries that rely on affordable gas for fuel and raw materials will move to other states or countries, taking thousands of jobs with them.

"California now faces a severe energy shortage," Crystal Energy warns on its Web site and in a brochure distributed throughout Ventura County in support of its proposal. Under the heading, "A Looming Crisis," the company warns that "as the natural gas shortage drives the price of electricity up, business and jobs are disappearing from California."

LNG is conventional natural gas that has been chilled to about 260 degrees below zero, at which point it turns to liquid and shrinks to one-six-hundredth of its original volume, making it feasible to transport by ship. By building LNG terminals, the companies argue, California can tap an abundant global supply, lowering prices and stabilizing the state's power grid.

According to the most vocal project opponents, however, LNG importation could unleash an apocalyptic cascade of tragedy and destruction: terrorists seizing control of tankers or attacking terminals to ignite conflagrations that incinerate coastal communities, pipeline explosions that destroy schools and neighborhoods, industrial degradation of priceless coastal scenery.

"A fiery inferno would engulf everything for 30 miles, incinerating communities ranging from Santa Barbara, Montecito, Carpinteria, Ventura, Oxnard, Camarillo, Port Hueneme, Point Mugu, Malibu and Santa Monica," Oxnard attorney Tim Riley warns on his widely visited anti-LNG Web site. It features a cartoonish image of a bright-orange fireball in the skies over Channel Islands Harbor.

Neither extreme is accurate, according to independent energy analysts and safety experts.

Domestic natural gas production is not keeping pace with U.S. demand, but the gap so far is a small one. It's even smaller in California, where gas demand has fallen 20 percent in the past four years and is not projected to rise significantly for two decades.

According to a recent study by Sandia National Laboratories, the most extreme scenarios described by LNG safety skeptics -- vast fires that destroy everything within a 30-mile radius of a tanker terminal -- are highly improbable. There are dangers associated with LNG transport, and the consequences of a major leak and fire in an urban setting could be severe, the report warns, but the risks can be reduced through precautions, including locating terminals far from population centers. "Not every site is a good LNG site," said energy analyst Mike Hightower, part of the Sandia team. "But not every site is a bad site, either."

## Projects on the horizon

To most Ventura County residents, the proposals that have ignited such wide-ranging debate would be nearly invisible, steel blips on a horizon already dotted with hulking oil platforms.

Texas firm Crystal Energy proposes converting Platform Grace, once used to tap oil and gas deposits, into a receiving terminal for tankers carrying LNG. The liquid would be warmed at the terminal, turning it back into a gas, and piped through a 36-inch line crossing 12.6 miles of the sea floor. The pipeline would come ashore at Reliant Energy's Mandalay generating plant, proceed underground through Oxnard and connect to a Southern California Gas Co. facility on Center Road in Somis. There would be no LNG storage at the terminal.

The other project off the Ventura County coast is proposed by BHP Billiton, an Australian mining firm with global interests in coal, diamonds, nickel, silver, copper, iron, oil and gas. Its Cabrillo Port would be a floating terminal, essentially a moored tanker 938 feet long. Its three spherical storage tanks would rise about 80 feet above the waterline and hold 72 million cubic meters of liquefied gas.



James Glover II / Star staff

Susan Jordan of Santa Barbara, the director of California Coastal Protection Network, worries the Ormond Beach marshland will be compromised by the pipelines from the proposed LNG terminal at Cabrillo Port. After converting LNG into gas, it would be piped across 21 miles of sea floor, burrowing beneath Ormond Beach, to a metering station at the Reliant Energy plant there.

The potential collision of gas imports in Somis illustrates a broader issue. There are about 40 proposals for LNG import terminals in North America, including six that could serve the West Coast: one in Oregon, three in Southern California and two in Baja California. Energy analysts don't see a need for nearly that many.

## Racing to be first

LNG imports currently account for about 2 percent of the nation's gas supply. That's likely to increase to 15 percent by 2025, according to the federal Energy Information Administration.

According to the National Petroleum Council, the increased load could be handled by expansion of four existing terminals -- one each in Maryland, Massachusetts, Georgia and Louisiana -- plus construction of seven to nine more distributed among the nation's Atlantic, Pacific and Gulf coasts. Since that report was produced, a fifth U.S. terminal has opened for business off the Gulf Coast.

"I think the companies are absolutely desperate to be the first one out of the gate," said Santa Barbara environmentalist Susan Jordan, complaining about a gold-rush mentality. "This is not something you rush into willy-nilly. This should be a thoughtful, coherent process."

Cabrillo Port would convert LNG into gas and send it to shore by a pair of pipelines crossing 21 miles of sea floor and burrowing beneath Ormond Beach at that site's Reliant plant. The pipes would merge there at a metering station, which would be connected by a new 36-inch line to the same Gas Co. facility in Somis.

Each port would receive two to three tanker shipments a week and would be capable of delivering 800 million cubic feet of gas to shore each day, more than half the volume consumed directly by residential customers. If they both try to connect to the Gas Co. system, it will require a significant and costly expansion of the company's transmission lines.

Terminal proponents tout increased imports as a way of saving consumers money by boosting supplies and introducing competition. However, energy analysts say building too many terminals could glut the market, causing prices to fall so much that LNG would not be economically competitive with gas from domestic wells.

The West Coast market can't absorb more than the capacity of one or two LNG import terminals over the next decade, the analysts said. Crystal Energy's Soanes puts the figure at two to three terminals and says imports probably won't have a major effect on gas costs. Energy companies will back away from LNG plans rather than build expensive plants that end up standing idle.

It's unlikely that either of the Ventura County terminal proposals will be first out of the gate. San Diego-based Semptra Energy has received permits and is nearly ready to begin construction of an LNG terminal 14 miles north of Ensenada in Baja California. That port will have a capacity of 1 billion cubic feet of gas a day and is expected to begin operation in 2008.

About half that gas will be delivered to Mexico, according to the company. The other half will be available for sale to California customers, including Semptra's corporate subsidiary, Southern California Gas Co.

With 19.5 million customers in its 20,000-square-mile service area, which includes Ventura County, it's the biggest gas utility in the nation.

In contrast, Crystal Energy's Clearwater Port is still in the application stage. BHP Billiton's Cabrillo Port is awaiting approval of its draft environmental documents.

The relatively slow pace of the approval process in California is at the root of one of the most wide-ranging controversies swirling around the LNG boom, one that pits federal lawmakers and regulators against their state and local counterparts.

### **A struggle for control**

LNG terminals must run a complicated regulatory gantlet imposed by local, state and federal agencies.

The energy industry has been lobbying heavily over the past four years to streamline that process by centralizing authority in the Federal Energy Regulatory Commission.

The Center for Public Integrity reported last year that, according to documents obtained under the Freedom of Information Act, executives and lobbyists for ExxonMobil, ChevronTexaco and other energy companies active in the LNG trade met privately at least 83 times from 2001 to 2004 with FERC commissioners, after which FERC asserted unilateral authority over LNG siting.

The California Public Utilities Commission challenged that decision in court, but the case may have been rendered moot by the federal energy bill that emerged from Congress in late July. The legislation, which President Bush signed Aug. 8, grants FERC "exclusive authority to approve or deny an application for the siting, construction, expansion or operation of an LNG terminal," onshore or in state waters.

The bill does not affect the two terminal proposals off the Ventura County coast. They would be in federal waters and are governed by the Deepwater Port Act, which gives the governor of a neighboring state the power to veto LNG terminals in waters beyond the state's 3-mile limit.

Opponents of LNG development condemn the effort to bypass state and local authority, which remained in the energy bill despite coastal lawmakers' efforts to remove it.

"Cutting the states out of any real role in LNG siting decisions is dangerous and unwarranted," said Rep. Lois Capps, D-Santa Barbara, whose district includes Ventura, Oxnard and Port Hueneme. "California has an obligation to look after the safety of its citizens, which the FERC wouldn't even consider. This is a power grab by the administration to ignore health, safety and environmental issues associated with siting an LNG terminal off our coasts."

Local leaders complain just as bitterly about Gov. Arnold Schwarzenegger's comment after a speech in Alhambra that he supported an offshore LNG terminal near Oxnard.

"I'd like our governor not to say he's in favor of it until the process is completed," said Malibu Mayor Andy Stern, who thinks Schwarzenegger jumped the gun by not waiting for a final environmental impact report.

Stern said the current draft doesn't provide real answers to communities like Malibu, enraged at the specter of an offshore terminal 14 miles from the Ventura-Los Angeles counties line.

"Our town is not interested in nice little platitudes that we're doing our best to protect the health and interests of residents of Oxnard and Malibu," he said. "That does nothing."

## Opposing views

The arguments over LNG divide neighbors, city councils and community groups. Often, they reveal a paradoxical attitude toward risk.

Walk through the south Oxnard neighborhood closest to the proposed pipelines and a retiree in a mobile home thinks the decision boils down to the nation's need for energy. He wants LNG. But a neighbor puttering in his yard -- apparently unfazed by the fact that high-pressure gas lines already run beneath nearly every street in his city -- says that if an LNG terminal comes, he won't let his grandchildren use the beach because it would be dangerous.

Some people examine the arguments and see fear shoving Ventura County and Southern California away from energy resources they believe are desperately needed.

"I just happen to believe we have to stop talking out of both sides of our mouth," said Ventura County Supervisor Judy Mikels of Simi Valley, noting much opposition focuses on the belief terminals 10.5 and 14 miles from land would pose dangers to people onshore. "I think it's based on irrational emotionalism. I have not seen anything from anyone that makes me want to yell 'The sky is falling. The sky is falling.' "

Even groups traditionally unified against fossil fuels are divided on the issue.

"I think I'm the only environmentalist who's speaking out in favor of this," said actor Ed Begley Jr., who has lent his name to the campaign supporting BHP Billiton's LNG proposal.

The former Ojai resident may be better known for his activism and his electric car than his movies and television shows. He's part-owner of a Palm Springs wind farm and installed solar roof panels on his home in the 1980s.

Now in Studio City, he worries not enough people use renewable energy. He sees LNG as better than the more-polluting alternative.

"I'm saying no to new coal. When you say no to one thing, you have to say yes to something else," he said. "I just want to keep the lights on."



James Glover II / Star staff  
Port Hueneme City Councilwoman Toni Young says she supports sitting an LNG terminal off Ventura County's shore. Young says California's gas needs necessitate terminals like the ones proposed near Oxnard and Port Hueneme.

## Alternatives to LNG

Critics of LNG say there's a better way to keep the lights on than by increasing imports of fossil fuel, a course the United States has pursued in meeting its soaring demand for crude oil. California, they argue, can eliminate the need to import LNG by pursuing the conservation, efficiency and alternative-energy strategies outlined in the state's formal energy plan. That plan calls for 20 percent of electricity purchases to be from renewable or alternative sources by 2017.

At the very least, LNG critics suggest, California should conduct a comprehensive analysis of its energy needs --including the potential for savings and alternative supplies -- before committing itself to LNG imports.

"If California is careful and goes about this analysis in a deliberate, considered manner, these LNG proposals will collapse," said Mark Massara, director of California coastal programs for the Sierra Club.

"The only way they will get them is if there's a rush to judgment."

Proponents of LNG, however, contend that even if opponents manage to block the proposed terminals off the Ventura County coast, gas imported as LNG will make its way to California.

The terminals, along with their economic benefits and environmental effects, will simply be displaced to Mexico or the Gulf Coast, where local opposition is weaker and regulation is less stringent.

“Projects are going to be built because the world market is just that -- a world market,” said Rick Morrow, Southern California Gas Co.’s vice president for customer service. “Supplies are going to seek out demand.”

## Current controversy spurs flashbacks to the 1970s

By John Krist  
August 28, 2005

Energy experts warning of a looming natural gas “crisis.” Sign-waving protesters stoking fears of fireballs and exploding ships. Endorsements by prominent politicians; intervention by the federal government. A daily drumbeat of newspaper coverage, with such headlines as “Oxnard leads list as site of LNG plant.”

It might be a description of the current controversy over liquefied natural gas, but it’s not. The headlines and stories date from the 1970s, when Ventura County learned for the first time what it means to be targeted for an LNG import terminal. That long-ago proposal to build a gas port at Ormond Beach ignited a controversy that engulfed the entire state and continues to influence debate over the same issue today.

Enthusiasm for importing LNG into the United States first grew in the 1960s, when domestic energy companies began withholding gas from the interstate market to avoid federal price controls. This led to spot shortages, price increases and a decline in production.

To fill the gap, several energy companies began exploring LNG imports, and construction began in the late 1960s and early 1970s on terminals in Everett, Mass.; Elba Island, Ga.; Cove Point, Md.; and Lake Charles, La.

By 1972, utilities in California had announced plans to build three LNG import terminals to serve the West Coast: one at Point Conception in Santa Barbara County, one at the Port of Los Angeles and one at Ormond Beach in Oxnard. Western LNG Terminal Co., a subsidiary of the parent company of Southern California Gas Co., commissioned safety studies for the Oxnard and Los Angeles sites, which concluded the risk of accident was low.

The Los Angeles City Council embraced the Port of Los Angeles proposal because of the jobs and economic boost it would provide. The Oxnard City Council, however, opposed the Ormond Beach proposal after the environmental impact report for the project -- which would have been located within a mile of homes -- concluded that as many as 40,000 people would die if a catastrophic accident unleashed a gas cloud and fireball that engulfed the city.

Thirty years later, safety experts dismiss that study as antiquated and based on faulty assumptions.

Both LNG sites ran afoul of federal policy calling for LNG terminals to be far from urban areas. The Point Conception site was remote, but an industrial development there would compromise the natural qualities the California Coastal Commission was established to protect.

Faced with this policy confusion, Western LNG and its supporters asked the Legislature to pass a law taking LNG siting authority away from the Coastal Commission and local government, and giving it to the California Public Utilities Commission, which already had regulatory authority over power plants and similar facilities.

LNG supporters didn’t quite get what they wanted. The Legislature approved the LNG Terminal Siting Act of 1977, giving sole permitting authority to the Public Utilities Commission. However, the law directed the Coastal Commission to conduct a comprehensive study of potential LNG terminal locations and to rank them in order of suitability, a process similar to the one LNG opponents are currently asking the state to conduct. The law directed the Public Utilities Commission to grant a permit for a terminal at the top-ranked site, unless it found construction there was not feasible.

The act also required that the approved site be onshore, and that it be at a remote location, with no more than 27 residents or workers living within a mile and no more than 1,800 within four miles. It also granted the terminal applicant the authority to use eminent domain “to create and maintain the low population density,” making it legally possible for the company to condemn land and move residents out of the way.



The commission evaluated 82 possible sites along the state's 1,100-mile coastline, dismissing most of them because of weather conditions, earthquake faults, proximity to urban areas or unacceptable environmental effects.

In a report completed in 1978, the top ranking went to Horno Canyon on the Camp Pendleton Marine



Lora Schraft / Special to The Star  
Joining community members in Oxnard last May, Karen Behnke, right, holds a sign to protest the proposed LNG terminals, tankers and high-pressure gas pipelines.

Corps base in San Diego County. Following that were Rattlesnake Canyon, a site in San Luis Obispo County about 5 miles down the coast from the Diablo Canyon nuclear power plant; the Point Conception site, about 12 miles west of Gaviota State Park; and Deer Canyon on the Ventura County coast about 2 miles from Leo Carrillo State Beach.

The Federal Power Commission and the Public Utilities Commission approved the Point Conception site.

Project opponents sued and forced the agencies to reconsider. In the end, economics scuttled the project.

In 1978, Congress approved the Natural Gas Policy Act, which lifted price controls on interstate gas sales. Domestic exploration and production promptly expanded, boosting gas supplies and dropping gas prices. LNG, a more expensive alternative, quickly became uneconomical, and Western LNG dropped plans for a California port. The Legislature repealed the LNG Terminal Siting Act. Three of the four U.S. LNG terminals shut down, leaving only the one in Everett, Mass., in operation.

The closed terminals began reopening as natural gas production in the United States again began declining and prices hit record highs. All four terminals are now in operation, and until March were the only active LNG import terminals in the United States.

## Poll manipulation charges make support, opposition difficult to determine

By Tom Kiskien  
August 28, 2005

Figuring out how many people support and oppose offshore LNG terminals in Ventura County is complicated by allegations the public docket on one of the proposed sites has been manipulated.

Of the 851 comments submitted to the U.S. Coast Guard and the California State Lands Commission regarding a proposed Cabrillo Port terminal off Ventura County's shore, about 435 people supported the project. About 320 opposed it or expressed concerns, with the balance taking no position.

But separate reports published earlier this summer by The Star and The Malibu Times alleged many of the comments -- most supporting LNG -- can't be traced or were attributed to people who flatly deny making the statements that were submitted through the Internet.

The apparent fabrications angered LNG opponents, including members of the Malibu City Council who voted unanimously to ask California Attorney General Bill Lockyer to investigate.

Officials from the U.S. Coast Guard, which helped set up the Web site that received many of the suspect comments, said they had no control over who submitted statements and no way to trace messages.

Representatives of BHP Billiton said the same thing.

Malibu Mayor Andy Stern scoffed at the suggestion that the anonymous nature of cyberspace makes concrete answers impossible.

"If crimes were committed and they were committed on the Internet, you shouldn't investigate them?" he asked sarcastically. "I wasn't aware of that. I think that's a ridiculous way to look at life."

Tom Dresslar of the Attorney General's Office on Friday declined comment other than to say that the issue is being reviewed.

Jess Herrera's problem was different. The Oxnard Harbor commissioner acknowledges writing a letter for the public record saying that California needs a stable energy supply but says he was misrepresented as an LNG supporter on a BHP Billiton Web site.

The energy company listed Herrera as part of a group called Coalition for an Affordable, Reliable Energy Solution, nicknamed Ventura CARES. BHP Billiton spokeswoman Kathi Hann said the group includes people who support the company's proposed terminal or liquefied natural gas in general.

"I'm neutral," Herrera said, noting he met with BHP Billiton and agreed to write a letter but made it clear his statement wasn't an endorsement. "I didn't give them my name to use as a supporter and they said they wouldn't use my name."

Initially, Hann said Herrera's letter qualified him for the coalition. On Friday, she said she had talked to Herrera and decided to remove him from the Ventura CARES list.

"We both agreed it was a mistake to put his name on the list," she said, noting that company doesn't want to misrepresent anyone.

## LNG Part 2: A valley transformed

By John Krist

August 29, 2005

**P**INEDALE, Wyo. -- Linda Baker likes to say that when she settled in this isolated corner of Wyoming 23 years ago, "it was the least populated valley in the least populated state in the Lower 48."

But Pinedale, the Sublette County seat, is no longer isolated and no longer as quiet as when Baker arrived. The town lies on the edge of one of the most productive natural gas reservoirs in the United States, a vast bubble of fossil energy trapped beneath the gently rolling hills just outside of town. That gas field is the focus of an energy boom that has ignited fierce debate in Wyoming over the proper balance between resource extraction and environmental protection, and has transformed the landscape, economy and culture of Sublette County by boosting its population, property values and crime rate.

"I feel like I'm being robbed of my home," Baker said. "My town is full of strangers."

Pinedale is not alone. The energy boom transforming Baker's home echoes across the American West, where skyrocketing gas prices and relaxed government regulations have unleashed one of the biggest natural resource bonanzas of the past century. Those echoes rebound also to the coast of Ventura County, where proposals to build liquefied natural gas terminals have ignited a high-decibel debate over public safety, environmental quality, national security, and the balance of power between state and federal governments.

Although the rush to drill and the push for ports seem at first glance to have little in common, the two phenomena are linked by a common thread: Both are symptoms of America's ever-growing hunger for energy, and its diminishing ability to satisfy that hunger by tapping its own resources. To understand why Ventura County could find itself one day greeting a parade of LNG tankers off its scenic shoreline, a good place to start is in western Wyoming. There, as in dozens of other places in the rural West, the nation's past and future are colliding in the sagebrush.

## Battling a juggernaut

Baker runs the Upper Green River Valley Coalition out of a small office on the second floor of the Stockman's Building, which has a bar, restaurant and drive-through liquor store on the ground floor. From a window seat in the restaurant, patrons can watch a steady parade of pickup trucks and big rigs growling through town on Pinedale's main street.

The unmarked pickups with dogs and neat silver toolboxes in the back belong to ranchers. Those with logos on the doors and heaps of hoses, tanks and other equipment in the back belong to gas companies or wellfield-service businesses. All are equally coated with grime from the dusty, unpaved roads that crisscross the countryside.

By the standards of suburban Southern California, Pinedale is still a pretty quiet place. The town of about 1,600 people lies in the heart of the Upper Green River Valley, a 7-million-acre swath of rolling rangeland watered by the Green River and cupped by the Wyoming, Gros Ventre and Wind River mountains. Together, the three ranges form a craggy, snowcapped U, with the open end pointing south. In



James Glover II / Star staff

Environmentalists warn that expanded gas drilling near Pinedale, Wyo., could slow or stop the natural migration of the pronghorn antelope that are already affected by the growing number of roads, homes, wells, and fences in the area.

that direction, the landscape tapers away into the scrubby badlands of southwestern Wyoming, where cows outnumber people and pronghorn antelope outnumber cows.

Baker has the slender and wiry build of someone who would look equally at home rowing a raft or climbing a slab of granite. One of Pinedale's attractions is the many outdoor activities made possible by the rivers and mountains in its scenic neighborhood. Recreation long ago

supplanted ranching as a major driver of Sublette County's economy, and it's what drew Baker to the area.

In recent years, however, ranching and recreation have been overshadowed by drilling and pumping. Baker has worked at various times as a member of a seismic survey crew, trail mapper for the U.S. Forest Service, teacher and part-time librarian, but for the past two years she has been a paid activist trying to influence the course of a fossil-fuel juggernaut.

## Pumping profits

Baker's battle began in 1994, when gas companies applied for permits to drill the first 40 wells in the Jonah gas field, 35 miles southwest of Pinedale. Baker tried to stall the project because of its likely effect on wildlife but was brushed aside like a tumbleweed in the path of a locomotive. There are now more than 600 wells in the Jonah field, with an additional 3,100 proposed. At a second field near town, about 600 wells have been punched into the dry slopes of what geologists refer to as the Pinedale anticline.

The wells in both fields are on public property managed by the Bureau of Land Management, which leases it to energy companies and processes drilling permit applications. Geologists estimate there's 7 trillion to 10 trillion cubic feet of gas in the Jonah field and perhaps twice that in the anticline. Altogether, that's about 18 months' supply for the entire country at current consumption rates. The Pinedale-area wells are expected to operate for up to 40 years.

The gas in the Upper Green represents a lot of money -- not just profits for energy companies, but income for field workers and revenues for state and local government, which tax gas company property and share in the royalties on production.

In 2003, the most recent year for which complete statistics are available, the taxable value of natural gas production in Sublette County was \$1.8 billion, according to the Wyoming Department of Revenue. That was tops in the state and more than double the value a year earlier, when Sublette County produced \$700 million worth of natural gas. Property tax collected in Sublette County last year jumped 116 percent over the year before, driven mainly by the rise in the value of gas company holdings, according to the Department of Revenue.

The high prices and high profits are, paradoxically, evidence of a looming threat over the domestic gas industry. Despite the boom in Sublette County and scores of other places in the West, gas production in the United States is falling steadily further behind demand. That growing gap is pushing consumer prices to record highs, and it helps explain why energy companies are suddenly interested in building liquefied natural gas ports along the nation's coastline.

But in Pinedale, the threat isn't evident -- yet. Although barely visible from town, the wells tapping the huge gas fields outside Pinedale have turned what was once empty rangeland into an industrial zone.

Huge trucks roar along the web of dirt roads crisscrossing the hills, sending up roostertails of dust that hang in the still air. Drilling rigs tower against the skyline. Pickups full of field workers speed along the roads, which have been widened and bladed flat to accommodate the trucks hauling drilling mud, water and other materials to and from the wells.

Each of the well pads encompasses one or more wells topped by a tangle of pipes and valves. Each also has a large pit full of toxic wastewater and drilling muds, and a collection of pipes, dehydrators and collection tanks for the volatile liquids that emerge from the well with the gas. The pads themselves, up to 5 acres in size, are flat, barren expanses of gravel. Each has a flare tower used to burn off some of the unwanted gases that vaporize from the condensate.

The plumes of smoke and other emissions from the fields worry some local residents, who've watched haze smudge their views of the mountains and the stars.

Perry Walker is among those alarmed by the effect of energy production on air quality in the Upper Green. A slender man, pale and with sharp-edged features, he lives on a hillside north of Daniel in a mobile home that's full of cats and memorabilia from his 25-year career in the U.S. Air Force.

He's a physicist and nuclear engineer who worked on a variety of projects for the Air Force, including testing infrared detection technology used to develop anti-aircraft missiles. An avid amateur astronomer who built his first telescope when he was 14, he now has a small observatory in his backyard, covered with a 10-foot aluminum dome.

### **Altering the view**

The first indication that energy development was changing his home came when the floodlit well fields began to interfere with his stargazing.

"When I came here in 1990-91, I liked to look at a particular galaxy," he said. "Along about 1998, I started to notice it wasn't what I had been seeing ... my night sky was not so black."

Five years later, he began to notice his daytime view of the mountains was being obscured by haze. He began writing letters to state and federal air quality regulators, suggesting gas exploration and production was degrading air quality in the Upper Green River Valley, and asking the agencies to monitor drilling activity to see if that was the case.

When government agencies ignored him, Walker decided to gather the data himself. He spent \$4,500 on a high-resolution spectrometer, fabricated a collection device, and hooked the system to a computer. He then began analyzing the plumes released by gas well flares. According to the spectrometer, the smoke contains a witches' brew of toxic metals and other chemicals, including sodium, potassium and lithium, as well as run-of-the-mill air pollutants such as sulfur dioxide, nitrogen oxide and soot.

"I'm getting broken-hearted by what's happening to this area," Walker said. "People don't understand the pressures of the outside world that are bearing down on Wyoming. They think they can hunker down and just wait it out."

### **Exporting the impact**

There's a certain irony in the way gas production is affecting the air in this remote part of Wyoming, although Pinedale-area residents don't seem aware of it. Or if they are, they're too polite to mention it to visitors from the West Coast.

California is the second-largest consumer of natural gas among the 50 states, trailing only Texas. If it were a country, it would rank as the 10th-largest user of natural gas worldwide. This is not just because California has a large population but because its strict air quality regulations have made low-polluting gas the fuel of choice for electricity generation.

Californians burn nearly as much gas to produce electricity as they do to heat their water, warm their homes and cook their food. They generate a greater share of their electric power from gas -- 42 percent, according to the California Energy Commission -- than the residents of any other state. Since 1998, 27 gas-fired generating stations have come on line in California, and 11 more are under construction, according to the California Energy Commission.

Yet California produces only 15 percent of the gas it consumes. The rest is imported by pipeline from Canada, Wyoming and other states in the interior West, where the gas wells feeding California consumers contribute to local air pollution like that documented by Walker. In a sense, Californians have exported some of the air quality problems associated with their "clean" electricity generation to places such as the Upper Green River Valley.

The effects of gas production on wildlife represent another potential environmental impact exported to Wyoming by distant consumers.

Pinedale lies in the middle of one of the richest concentrations of big animals in North America, an estimated 100,000 mule deer, pronghorn antelope, bighorn sheep, moose and elk. The animals migrate between their winter range, typically along the rivers and on protected slopes, and their summer range in the mountains. Some pronghorns travel from southern Wyoming to the Grand Tetons and back each year, a 320-mile round trip that's one of the longest mammalian migrations in the world.

"What we've got here are two world-class resources -- wildlife and natural gas -- in one place," Baker said.

Because of the topography of the Upper Green, the animals are funneled into a bottleneck northwest of town where the hills and the rivers pinch the migration corridor to only a couple of miles in width. Named Trapper's Point, the bottleneck is the site of old Native American hunting camps, testament to the animals' vulnerability there. Already constrained by geography, the bottleneck has been fragmented and narrowed even further by private homes, fences and roads.

Environmentalists warn that expanded drilling -- which is sought by energy companies hoping to pull even more gas from the productive Pinedale fields -- threatens to plug the bottleneck completely, with devastating effects on the migrating herds.

"This is nationally significant public land," said Peter Aengst, who coordinates The Wilderness Society's energy campaign out of an office in Bozeman, Mont. "There's already been a tremendous impact on wildlife."

The BLM's Pinedale office is at the center of the storm swirling around energy development in the Upper Green, a storm that has come to represent the broader controversy over energy exploration in environmentally sensitive areas throughout the West. And Prill Mecham, the BLM's Pinedale field manager, is at the eye of that storm.



James Glover II / Star staff  
Linda Baker of the Upper Green River Valley Coalition began her battle against gas companies in 1994, when the permits to drill the first 40 wells southwest of Pinedale were filed. There are now more than 600 wells in that field, with an additional 3,100 proposed.

Mecham is of middle age, with graying strands of hair and an easy smile, and looks like she ought to be just about anywhere but the heart of a nationwide political struggle. She certainly wasn't anticipating that role when she came to the Pinedale office from Carson, Nev., expecting a sleepy, out-of-the-way posting. Instead, she arrived just in time to have one of the greatest energy booms of the past century drop into her lap.

"The day after I got here was the day they signed the Jonah II EIS," she said, referring to the environmental study on what would turn out to be a hugely productive gas field. "When I first got here seven years ago, we had 12 (drilling) rigs operating in the entire field office. This past summer, we had 40." To cope with the boom and process drilling applications, the Pinedale office staff has nearly doubled in that time, from 26 full-time employees to 50.

Across the West, BLM offices in gas-rich areas have endured a similar crush. So many bureau employees are processing drilling applications that it has compromised the agency's ability to protect the environment from the effects of exploration and production, according to a June report by the Government Accountability Office.

Before the BLM leases land to drilling companies, the agency applies stipulations to it, such as prohibiting winter activity, requiring setbacks from waterways or imposing buffer zones to separate wells from residential subdivisions. The BLM does not, however, impose air- or water-quality regulations on the leaseholders.

Environmentalists are critical of this, but Mecham says the BLM is not a regulatory agency; it's a land manager, and therefore lacks the authority to impose such regulations, which instead lie with the U.S. Environmental Protection Agency and Wyoming's Department of Environmental Quality.

"I think the most important thing we can do when we're involved in change like this is to keep the lines of communication open and really listen to people," Mecham said.

### **Losing a way of life**

Concerns about the effect of the gas boom on Pinedale and the other small towns of Sublette County are not restricted to paid activists and inquisitive retirees. Ranching has long been the economic and cultural glue holding the Upper Green River Valley communities together. And like their counterparts across the West, many ranchers in Sublette County view the gas juggernaut with alarm.

Freddie Botur is one of them. A tall, rail-thin man in his early 30s, he runs his family's Cottonwood Ranch south of Daniel. It's an 80,000-acre spread, of which the family owns 12,000 acres; the rest is leased from the BLM.

To reach the home where he and his wife, Amanda, spend the summers, visitors must follow an unpaved county road about 12 miles into the rolling sagebrush prairie, toward the snowcapped bulk of the Wyoming Range, and then turn onto a rough dirt driveway. Three more miles of bumpy track lead over a ridge with a spectacular view and descend into the small valley of Cottonwood Creek.

Between the creek and a low, sheltering bluff stands a collection of old wooden structures -- a barn, a chicken coop and several outbuildings -- which Botur, a former contractor, is restoring. A corral holds a few horses. A pack of mismatched dogs comes barreling across the yard to greet visitors. It includes a few shepherds and a poodle, a breed seldom found on working cattle ranches. The centerpiece of the complex is a century-old homesteader cabin of hand-hewn timbers, where the Boturs live during the brief interludes between Wyoming winters.

Botur said he doesn't oppose all energy development -- there are, in fact, several gas wells on his ranch -- acknowledging that it meets a demand. But there are appropriate and inappropriate places to drill, he said, as well as better and worse ways to go about it. If spaced too densely, gas wells can render grazing land unusable; improper discharge of the chemical-laden water that often emerges with the gas can kill grass and contaminate streams and stock ponds.

What most concerns Botur, however, is the way the energy boom threatens to change the character of rural Wyoming. As the population grows, drawn by gas jobs and gas money, it puts pressure on ranchers to subdivide and cash in on their holdings. As the range is carved into ranchettes, the old ways disappear and traditional community bonds dissolve.

"A big part of this oil and gas invasion is that a lot of that culture is threatened," Botur said.

Like Baker and many residents in communities that are trying to balance the costs and benefits of energy development, Botur wants stringent environmental regulations imposed on gas operations. He argues that the extraordinary nature of the prairie wilderness -- a landscape of wild, open space that once

defined the American frontier and continues to exert a powerful hold on the nation's image of itself -- deserves extraordinary protection.

"What we do here is deciding the fate of the West," he said.

## Bust may be looming as U.S. gas production falls

By John Krist

August 29, 2005

On a sagebrush-covered hill just west of Pinedale, Wyo., a dirt road climbs steeply to an overlook providing a panoramic view of the Upper Green River Valley. Cattle graze the lush bottomland below, where the river twists like a sky-blue serpent among willows and cottonwoods.

In the 1820s and 1830s, this valley was the setting of the fabled Green River rendezvous, a yearly extravaganza of drunkenness, gambling, gunplay and commerce conducted by trappers and merchants involved in the Rocky Mountain beaver-fur trade. Furs were the first of many natural resources to lure fortune-seekers to the West and then dash their dreams when the boom -- whether based on gold, silver, timber, uranium or cattle -- went bust.

That historical lesson has relevance today. Natural gas is fueling the latest resource boom in the West, which has transformed the landscape around Pinedale and scores of other communities into industrial zones. And already there are signs of

an eventual bust, anticipation of which is partly responsible for the flood of applications to build liquefied-natural-gas terminals near Oxnard and dozens of other coastal communities around the country.

"The fact is, the Lower 48 gas supply is tapped out," said Paul Soanes, president of Crystal Energy, a Texas firm that has proposed converting an oil platform 11 miles off the Oxnard shoreline into a receiving terminal for LNG. "Gas supply in North America is declining. Demand is rising. There's going to be a gap."

Soanes and his company are betting \$300 million that gas imported from other countries will fill that gap. And they're not alone. Australian mining colossus BHP Billiton wants to build an \$800 million floating LNG terminal not far from the Crystal platform, and five other companies or consortia have proposed terminals for either Southern California or northern Mexico, where they could supply California and the Southwest. Three have been proposed for coastal Oregon.

Crystal, BHP and other energy firms have a financial interest in cultivating the perception that America is running out of gas, and some critics of LNG importation accuse them of exaggerating the situation in pursuit of profits. But there's some support for the energy industry's argument in the data collected by government analysts, which show a decline in domestic production despite tens of thousands of new wells.



James Glover II / Star staff

Seven years ago there were 12 drilling rigs like this one in operation on the dry slopes of what geologists call the Pinedale anticline. Today, that number has risen to 40.

### Declining supply

From 2000 to 2003, the number of producing wells in the United States rose from 341,678 to 393,327, according to the Energy Information Administration, the statistical arm of the U.S. Department of Energy. In that same time, however, annual U.S. gas production actually dropped by 117.5 billion cubic feet.

Not only is the average production per well dropping, but the yield from individual wells is peaking more quickly and then declining more rapidly than in the past, according to a June report by the California Energy Commission. It suggests gas companies are tapping progressively smaller fields.

According to the EIA, U.S. demand for natural gas will rise 1.7 percent a year over the next decade. During the same time, domestic natural gas production is expected to rise only 1.6 percent annually.

While domestic production stagnates, imports from Canada -- which provides 15 percent of the U.S. gas supply and nearly a quarter of the gas consumed in California -- are expected to decline as more of that country's production shifts to meet growing internal demand. Consumption in Mexico (which already imports gas from the United States) also is anticipated to rise, providing more competition for North American gas supplies.

Natural gas consumption in California has declined 20 percent from its peak in 2000 and 2001, and it is projected to remain flat through 2008, according to the California Energy Commission. After that, it will begin rising, although more slowly than in the nation as a whole, and by 2025 will still be below the 2000-01 level.

Environmental activists battling to halt or delay approval of LNG terminals in California argue that there's no need to rush, given the slow pace at which the state's natural gas demand is growing. And they argue that conservation measures and alternative sources such as solar and wind energy can meet that demand without additional fossil fuel imports.

### Alternatives to imports

"There's no place in the world that's better suited to expand the use of renewable energy sources than California," said Owen Bailey, who heads the coastal protection campaign for the Sierra Club's California-Nevada-Hawaii office.

To San Diego engineer Bill Powers, any looming shortage of natural gas in California is more likely to be the result of market manipulation by energy companies than a true imbalance between supply and demand.

"This is all smoke and mirrors," he said, referring to efforts by energy companies to paint a dire picture of California's supply-demand balance.

Powers is chairman of the Border Power Plant Working Group, a watchdog organization tracking LNG and electricity-generating projects in California and Mexico. He said the organization plans to sue the California Public Utilities Commission over its recent approval of a request by gas utilities to substitute LNG for conventional gas in their supply mix.

That substitution, Powers contends, guarantees that no matter how much LNG ends up costing California gas companies -- even if it's more than gas from domestic wells -- ratepayers can be forced to pick up the tab. In essence, that decision guarantees a profit for LNG importers at the expense of residential and commercial gas customers, and it insulates utility shareholders from the consequences of dubious deals to buy expensive imported fuel, he said.

Even the modest conservation efforts already outlined in the state's energy plan would reduce natural gas consumption in California by an amount equal to the import capacity of an entire LNG terminal, Powers argues.

The state's plan calls for 20 percent of electricity purchases to be from alternative and renewable energy sources by 2017, which the state estimates would reduce gas demand by 500 million cubic feet a day. A pair of studies prepared two years ago for Pacific Gas & Electric Co. concluded that gas consumption could be reduced by 40 percent in existing homes and 20 percent in commercial buildings just by adopting about two dozen efficiency improvements, such as installing double-paned windows, retiring old and inefficient appliances, and adding insulation.



### Increasing competition

Analysts warn, however, that California's consumption is only part of the picture. The state can expect increased competition for domestic gas from other western states with rapidly growing populations such as Arizona, Nevada and New Mexico. Those states are linked by new pipelines to the same fields that supply California, and they are investing heavily in gas-fired electrical generating plants.

Conservation and expanded use of alternative sources are important, but they alone will not be adequate to meet demand, said Rick Morrow, Southern California Gas Co.'s vice president for customer service.

"We can't just look to conservation and energy efficiency to solve the supply problem," Morrow said. "We need to see new supplies coming into California."

The National Petroleum Council, a federal committee that advises the U.S. secretary of energy, predicts that traditional domestic sources of gas will be able to meet only 75 percent of the nation's demand over the next 20 years. The EIA predicts that natural gas imports will more than double during that time to take up the slack, and that liquefied natural gas will account for nearly all the increase.

For that to happen, the EIA estimates, the United States will need to increase LNG terminal capacity 28 times over the current level.

## LNG Part 3: Measuring the dangers

### Fears range from tanker collisions to terrorism

By Tom Kisken and John Krist  
August 30, 2005

**A**l De La Cerda sits in an open garage after work, tipping a can of Bud Light and mulling over nightmares: earthquakes, terrorism and ruptured pipelines.

The natural gas that fuels his anxiety would come ashore about 2.5 miles from his four-bedroom home at the edge of a strawberry field. The pipeline would likely follow Hueneme Road, a half-mile from this South Oxnard neighborhood of working-class homeowners.

Still wearing his Sara Lee deliveryman's uniform and a Los Angeles Dodgers visor, De La Cerda may know more about plans for a new softball complex than about the liquefied natural gas that would be converted to gas at an offshore terminal and piped 21 miles across the seabed into Oxnard. But he has heard the talk of everything that could go wrong.

"We're the ones," he said, "who would die first."

For all the arguments about America's dwindling energy resources and the impact of tankers and pipelines on marine life, the fight against LNG orbits around disasters. People in Oxnard, Long Beach, Fall River, Mass., and the more than 30 other communities earmarked for LNG stations worry about spills that could start fires so hot people a mile from the source could blister from burns. They worry about tanker collisions. They worry about terrorists who look at an LNG terminal and visualize a bull's-eye.

Their fears focus not on what would happen but what could happen. Paul Chatman, the president of Ocean View School Board, lives a few blocks from De La Cerda and calls it the what-if game.

"We're hearing people say that 'Wow, this thing could explode. People could die. Our property values could drop,'" he said.

Some liken an LNG explosion to Hiroshima. Others steer away from apocalyptic scenarios but still maintain not enough is known about what happens when a liquefied gas that has to be kept at 260 degrees below zero leaks. Experts who calculate the risks of accidents or attacks offer some assurances. They cite a December study from the U.S. Department of Energy's Sandia National Laboratories that refutes worst-case claims of a fire stretching far from the ocean into coastal communities. And though they contend shipping LNG bears risks and acknowledge the remote chance of vapor fires devastating a community, they stress terminals located several miles offshore like the two deep-water proposals near Ventura County carry minimal risks. "The only reason these things become interesting for terrorists is if they kill a lot of people," said Richard Clarke, who advised four presidents on national security issues and was the White House counterterrorism expert during 9/11.

A fierce opponent of LNG stations planned for cities in Rhode Island and Massachusetts, Clarke flatly rejects claims that al-Qaida or any other terrorist group would target offshore terminals.

“Terrorists are not interested in blowing things up just because when you hit them, they explode,” he said. “If something’s offshore, it’s just not going to be of interest.”

### Calculating the risks

In January 2004, explosions and fires killed 27 people and wounded 80 at an Algerian plant where natural gas is cooled into LNG. One of the plant’s refrigeration units leaked either LNG or the flammable gas used to chill it, according to an analysis of the official accident report by Hazards Intelligence journal. That created a large vapor cloud ignited by a steam boiler.

U.S. LNG plant operators argue such a disaster couldn’t happen at import facilities, including those proposed near Ventura County, because they use warm water to transform LNG back into gas. The Algeria



James Glover II / Star staff

An LNG tanker known as the Berge Boston makes its way through Boston Harbor, guarded by escort tugboats, on its way to make a delivery to the Distrigas station in Everett.

plant used steam turbines to power its refrigeration process. The operators also blame the Algeria accident on inferior plant design.

But Jerry Havens, a chemical engineer from the University of Arkansas who has researched LNG safety since the 1970s, said Algeria raises the possibility certain chemical reactions can cause a vapor cloud to explode, rather than just burn.

“It blew things apart,” he said. “What happened in Algeria is of direct relevance.”

Sixty years earlier, LNG leaked from a cracked storage tank into the sewer system and streets of Cleveland. The

vapors started a fire that killed 128 people. Investigators blame the deaths on the wartime steel shortage, which meant the storage tank was built with brittle metal. Such low-nickel steel is now banned at LNG facilities.

Both tragedies drive what-if speculation.

“LNG incinerated one square mile of Cleveland. That’s a tremendous risk,” said Tim Riley, an Oxnard lawyer helping to lead the national fight against LNG. “There’s always going to be accidents. When that happens with one of these kind of facilities, it’s catastrophic.”

But the two disasters are the only large accidental spills and fires in more than 80 years of storing and transporting LNG, according to reviews of industry and insurance company records by numerous analysts, including the Congressional Research Service. Experts say the accidents don’t provide enough data to scientifically gauge risks or consequences of a major spill at a contemporary U.S. terminal or on a tanker. Nor have there been large-scale simulations of ruptured tanks or vapor fires.

So experts rely on computer modeling to predict risks and acknowledge their calculations are only as accurate as the assumptions on which they are based.

“The studies that are out there now have holes big enough to drive Mack trucks through,” said Eric Dawicki, an LNG security consultant who is president of the Northeast Maritime Institute in Fairhaven, Mass. Once a merchant marine officer who worked on LNG tankers, he contends the only way to address public fears is to take large amounts of liquefied gas into a desert and test what happens when vapor clouds burn.

“If we have the science to back up what the technicians already believe, then there is no longer a debate,” he said. “It is imperative we remove the debate.”

The tankers that Dawicki once helped pilot to places like Louisiana’s bayou country and South Korea seem huge as they crawl through a harbor, dwarfing a security force that includes helicopters, Coast Guard

cutters and tugboats. But at about 1,000 feet long and 150 feet wide, a typical tanker is no larger than most of the 5,000 merchant vessels that traverse the Santa Barbara Channel each year on the way to the ports of Los Angeles and Long Beach.

All tankers have double hulls and carry their LNG in insulated tanks that keep it cold enough to stay liquefied. One ship carries about 150,000 cubic meters of LNG, equal to about 3 billion cubic feet of gas. That's about 43 percent of California's daily gas consumption.

A tanker can lose its cargo by running aground and tearing itself open. It can collide with another vessel. It can be attacked by terrorists hoping to ignite the gas and touch off a devastating fire.

As a liquid, LNG doesn't explode or burn. But when it leaks, the fluid warms and vaporizes. Mixed with air in the proper ratio and then struck by a spark or flame, the vapor can burst into fire.

"It burns like a can of gasoline would burn," said mechanical engineer James Fay, who studies LNG safety and believes it's unlikely but not impossible the vapor cloud would explode. "It's just a fire. I say 'just.' It's a pretty big fire."

### **A shrinking danger zone**

On the map shown by Donna Johnson as she sits in her living room, a fireball shaped like a winged serpent obliterates almost everything from Santa Barbara to Simi Valley. Much of Ventura County is gone save for a few areas that include land tucked behind the Conejo Grade.

"The only thing that's going to save Newbury Park is going around that mountain," Johnson said.

She's a school accounting clerk who is also neighborhood council president for Oxnard's Pleasant Valley Estates, meaning she worries about trash pickup, road repairs and the planned pipeline carrying LNG, already converted into its gas form, about a half-mile from her home. Some of her neighbors think the offshore terminals could bring jobs. Others said gas prices could fall. More than a few have never heard of liquefied natural gas and don't know what to think.

Johnson keeps a blue binder of documents that warn of LNG's dangers. She worries that if a tanker collided with another vessel or was attacked by terrorists, the fire could extend in any direction for more than 30 miles.

The theory has marked LNG fights since a failed attempt to build an onshore terminal at Oxnard's Ormond Beach in 1977. But last year's safety study from Sandia National Laboratories suggests the largest possible vapor fires could endanger people for a radius of just more than two miles.

Havens may be partly responsible for the 30-mile estimates. Back in the 1970s, he evaluated several LNG safety assessments for the U.S. Coast Guard and wrote a report outlining the vast range of opinions on the size of vapor fires, from less than one to mile to more than 50.

"I don't know if they read any further than that or not," Havens said, adding he believed at the time that the danger zone was 3 to 10 miles. And three decades of research later, he now agrees with the Sandia assessment and has difficulty imagining a scenario in which an offshore terminal could endanger a city like Oxnard. So does Fay, an emeritus professor at the Massachusetts Institute of Technology.

"There's just no way you can make the case that a fire or vapor cloud released by the ships is going to harm anyone on the shore," Fay said, emphasizing that such a fire at an onshore terminal could be horrific. "A mile away, you get second-degree burns within 30 seconds. You can't move anyone away from the fire. They just get exposed where they are."

The first U.S. LNG storage facility was built in 1912 in West Virginia and now 114 LNG facilities operate. Five are import terminals -- the type of stations proposed off Ventura County's coast -- and a station in Alaska exports LNG. Most of the rest are storage units.

But while LNG isn't new, the deepwater platform that BHP Billiton wants to build at sea 14 miles from the border of Ventura and Los Angeles counties is unique -- a structure as long as three football fields with tanks that could hold 72 million cubic meters of LNG. Environmentalists like Susan Jordan of the California Coastal Protection Network worry that unloading LNG from the tanker to the platform, from one moving object to another, could increase the chance of spills that may not jeopardize people ashore but could intrude on the nearby shipping lane.

"There's this knee-jerk reaction that throw it offshore and everything goes away," she said of safety concerns. "That's not true."

But LNG would be conveyed from the tanker to the platform through sealed connecting arms, said Kathi Hann of BHP Billiton, asserting the only chance of spill is through a ruptured tank -- same as onshore.

“The truth of it is this technology has been going on for decades,” she said. “The only difference is the product is LNG and not oil.”

Tankers have carried liquefied gas since 1959. Five ships have been in accidents at sea, including a crash three years ago between a ship named the Norman Lady and a U.S. Navy submarine, according to the environmental impact statement for the BHP Billiton platform. None resulted in injuries, fatalities or a spill. A study by University of Houston’s Institute for Energy, Law and Enterprise concluded that a collision or grounding hasn’t caused an LNG spill in about 40,000 voyages covering 60 million miles.

Ships in port have leaked small amounts of LNG a dozen times over the past 40 years. None caused fires and most occurred while the ships were loading or unloading, according to a 2003 survey by the Congressional Research Service.

When spills happen, tankers are equipped with automatic detection and shutoff systems as well as fire sensors and devices that snuff out flames with nitrogen.

But if the risk of a tanker accident is well understood and documented, the threat of terrorism is different.

### **Threat called real**

People worried about attacks on LNG terminals or tankers point to the USS Cole, the guided missile destroyer rammed by a small boat full of explosives in an attack that killed 17 sailors. They refer to the June bombings in London’s subways. More than anything else, they talk about Sept. 11, 2001.

“Whoever thought the World Trade Towers would come down?” Jordan said. “It hasn’t happened before. That doesn’t mean it couldn’t happen.”

The threat is real, agrees former White House terrorism adviser Clarke. Now a private consultant, he helped Rhode Island’s attorney general craft a report asserting a planned LNG terminal in Providence could attract al-Qaida or possibly a homegrown terrorist group.

The report claimed an attack on a chemical or gas tanker was considered the sixth most likely doomsday scenario by the U.S. Department of Homeland Security, asserting the government is expected to spend \$1 billion to prevent such attacks.

Two months after publication, the Federal Energy Regulatory Commission rejected the Providence LNG site.

Before 9/11, tankers entering Boston Harbor were not escorted by the Coast Guard as they crawled past Logan International Airport and downtown Boston. Now, LNG deliveries through the same waters involve onboard inspections, screenings of tanker crews and a long line of security escorts including helicopters, Coast Guard cutters and tugboats. During terrorism alerts, scuba divers check piers for explosive devices.

Security at terminals off California’s coast wouldn’t be as dramatic. Tankers would have to give the Coast Guard four days notice before entering U.S. waters, providing information about crew members. Clarke questions whether any level of security could deter terrorists.

“What does anyone really think that a helicopter or a tugboat is going to do?” he said, outlining scenarios in which a small boat or plane barrels directly into a tanker. “They’re not going to be able to stop it.”

But he asserted the threat exists only when LNG terminals are built within a mile of populated areas. Asked to assess the terminals proposed off Ventura County’s coast, he sees little danger because not enough people would be in the kill zone.

“There’s no need to exaggerate this,” he said. “It’s bad enough without exaggerations.”

### **Ready to move**

Ventura County residents complained and worried and complained some more about the dangers of piping pressurized gas from an offshore terminal past residential areas, schools and hospitals. They even held hands along a possible route in a protest. And BHP Billiton and Southern California Gas Co. changed its proposed route.

Now, the 36-inch pipeline would follow Hueneme Road past Pleasant Valley Estates. It would cut through farm land before crossing Highway 101 and coming near an unincorporated community of houses, mobile homes and businesses known as Nyeland Acres. That’s where Carolyn Bernard is buried in dog hair on a sunny July afternoon in the Canine Styling Salon that she’s run for 15 years.

Ask about liquefied natural gas and her shoulders shrug.

"I have no idea what it is," she said.

Tell her it's fuel that would be converted into its gas form and piped underground not far from her business.

"Ex-cuuuse me!" she said, voice rising. "I'm not so sure that's such a good thing."

The more she hears, the less confident she becomes. She worries about the company's safety assurances -- "That's when you have a problem" -- and pipelines rupturing, though she knows other pipes carrying gas already burrow in the ground nearby.

Finally, she turned to her visitor.

"Where can I move?"

Pipes become corroded and leak. Construction workers slice into them with backhoes and bulldozers. Cars veer from the road and snap them off. Earthquakes and landslides sever them. A Washington, D.C., area gas company blamed an increase in pipe leaks to differences in the composition of liquefied natural gas.

Safety experts and even some environmentalists fighting LNG terminals don't dispute the possibility of leaks but also point out that networks of pipelines already exist.

According to the Office of Pipeline Safety, more than 292,000 miles of major transmission and distribution pipelines crisscross the United States, carrying gas across state lines or from region to region. Southern California Gas Co. operates about 95,000 miles of pipeline, including a 30-inch transmission line near Ormond Beach, close to the size of lines in the same area that would carry gas from the LNG terminals.

The numbers don't provide much comfort near the end of the proposed pipeline, which also happens to be the home of Mesa Union Elementary School, attended by more than 560 students grades kindergarten through eight.

The school has been at this Somis site, flanked by lemon groves and Highway 118, since 1937. Superintendent John Puglisi is working with BHP Billiton representatives to move the pipeline farther away from its planned path across the road that serves as the school's driveway.

He worries because LNG poses one more possibility that bad things could happen. Other pipelines already come near but Puglisi argues the existence of risk is no reason to increase it.

He voices the argument heard all along the proposed pipeline: Eliminating the possibility of danger is better than allowing even a remote chance of an accident.

"Not in my back yard definitely comes up," he said.

## Critics say area is too seismically active for LNG

By John Krist

August 30, 2005

**H**uman misjudgment and malice are not the only factors threatening the safety of liquefied natural gas projects.

Natural forces pose a risk of their own, particularly in a seismically active region such as Ventura County, where the landscape is as fractured as a dinner plate dropped on concrete. And to critics of proposals to build LNG import terminals off the Oxnard shoreline, geologic hazards are another reason to reconsider the projects.

"It's not a good idea to put LNG infrastructure in a place that's earthquake-prone," said Trevor Smith, who lives in Oxnard and chairs the LNG task force for the Sierra Club's Los Padres chapter. "They're using us as guinea pigs."

At the request of Rep. Lois Capps, D-Santa Barbara, whose district includes Ventura, Oxnard and Port Hueneme, the U.S. Geological Survey last year analyzed the risk to LNG facilities posed by earthquakes, landslides and other geologic hazards. Released in December, the report identifies a host of formidable challenges facing project engineers as they try to design deep-water terminals and pipelines that will occupy some of the most unsteady terrain in North America.

Both proposed LNG terminals -- Crystal Energy's Platform Grace project, and BHP Billiton's Cabrillo Port -- would be in areas crisscrossed by faults, some capable of unleashing powerful quakes, the USGS determined.

An offshore extension of the Oak Ridge Fault runs very close to Platform Grace and is considered capable of producing quakes of magnitude 7.1; the Anacapa-Dume fault running near the Cabrillo Port location could unleash a magnitude 7.8 quake, geologists believe.

The 1994 Northridge quake -- which killed 57 people, injured nearly 9,000 and caused more than \$20 billion in damage -- had a magnitude of 6.7.

The chance of a magnitude 6.5 or larger quake occurring within 30 miles of Platform Grace in the next 30 years is 50 to 60 percent, the USGS estimated. For Cabrillo Port, the estimated likelihood is 35 percent.

"Thorough seismic investigations are vital to understand how an earthquake could cause massive damage to the pipelines and LNG terminals," Capps said. "These pipes will run close to schools and houses and we need to know that they are safe."

Pipelines connecting the LNG terminals to shore would cross areas that have produced very large underwater landslides, likely in response to earthquakes. They also would cross the huge mountain of sediment dumped in the ocean at the mouth of the Santa Clara River, which during big floods can deposit so much mud, sand and gravel that it causes the underwater equivalent of a powerful, fast-moving avalanche. "The only comparable on-land processes are the catastrophic volcanic flows that rush down the flanks of volcanoes during explosive eruptions," the USGS geologists wrote.

Once they reach shore, the pipelines will be subject to other geologic risks. Earthquakes can cause the land to shift vertically and horizontally, potentially severing the pressurized pipes. And along the proposed routes, the pipelines will cross the kind of soil that often liquefies in a powerful quake, the geologists warned.

The USGS report also notes quakes in the Santa Barbara channel have produced tsunamis. These would not likely pose much threat to tankers at sea or the LNG terminals themselves -- both projects would be located in deep water where even a powerful seismic sea wave would be no more than a few feet high. However, the tsunamis could be 10 feet tall or more when they reach shore and could damage facilities there, the report says.

Project proponents are confident the terminals and pipelines can be engineered to stand up to the worst nature can dish out, and they note that scores of pipelines carrying crude oil and natural gas from platforms in the Santa Barbara Channel already cross the sea floor.

"We're very aware of the issue," said Simon Poulter of Ventura-based Padre Associates, a consulting firm that's managing the environmental review process for the Crystal Energy project. "Frankly, you build a house anywhere in this area and you have seismic issues."

Crystal is conducting a detailed geo-technical survey of the area around Platform Grace and will map the pipeline route as well, Poulter said. The pipeline will incorporate such measures as automatic shutoff valves, heavier steel and flexible anchors to deal with any geological instability, whether undersea or onshore.

"We don't know that we're crossing any faults," Poulter said. "If we do, there are design methods that can be used."

BHP is also studying the undersea geology and will take similar steps to design a robust pipeline, said company spokeswoman Kathi Hann.

If an undersea pipeline ruptured, some gas would be lost before the automatic shutdown valves were activated and before seawater was poured in to plug the pipe. Unlike oil, which remains on the water as a sticky goo that can foul birds and other wildlife, the gas "would bubble to the surface and dissipate," Hann said.

## Oxnard lawyer challenges big industry on dangers Opponents accuse him of 'fear mongering'

By Tom Kiskien  
August 30, 2005

Tim Riley is a marked man.

Operators of a liquefied natural gas plant in Everett, Mass., not only know of the Oxnard lawyer leading the charge against LNG but have watched his video that shows a plane flying into a tanker in

a manipulated image of terrorism.

Industry representatives in Louisiana, Texas, California and anywhere else there's LNG know he argues that a vapor fire could extend at least 30 miles and, in areas like Ventura County, could kill 70,000 people.

Riley's supporters, including former Oxnard Mayor Manny Lopez, credit him with challenging big industry by hammering home the contention that no one knows what could happen if a tanker or terminal spilled millions of gallons of cryogenic liquefied gas.

Critics accuse him of cherry-picking evidence from nearly 30-year-old documents to make conclusions that scientists label obsolete and flat wrong.

"I think he's a lawyer, a lawyer trying to do science," said Ronald Koopman, a physicist and safety consultant for BHP Billiton, one of two companies proposing offshore LNG terminals near Ventura County. "He's become an international figure. He's sort of the Rush Limbaugh of the LNG circuit."

Riley, 56, sits in a garden outside his Mandalay Shores home, smoking a cigar. His wife, Hayden, sits nearby taking notes and tracking the time left before another LNG interview with a reporter from Mexico.

"You put a tsunami in back of this thing, three football fields long and the width of a football field, have that ripped up from the sea, coming toward Malibu, toward Oxnard," he said, referring to the proposed Cabrillo Port terminal about 14 miles from the border of Ventura and Los Angeles counties. "You've got an international disaster."

He contends all onshore and offshore LNG proposals should be put on hold until scientists test LNG safety by doing large-scale spills. A catastrophic loss specialist lawyer, his fight began more than two years ago when he received a brochure about a proposal to convert an old oil platform into an offshore LNG terminal. He did research and learned vapors from liquefied natural gas killed 128 people in Cleveland in a 1944 disaster.

"They never talk of Cleveland," he said of LNG leaders, accusing them of preying on the public's fears by exaggerating the country's need to import natural gas and diverting attention from public safety.

Relay the assertion to Koopman and he asks to hear it a second time.

"He accuses the industry of fear mongering? Ha!" he said. "I've never seen fear mongering like I've seen on Riley's Web site."

Riley doesn't buy the argument that his claims rest on extreme fringes.

He says his purpose is to force people to consider all the possibilities. He complains that too often government leaders deal with LNG and other energy issues by digging their heads into the sand.

"That's what all of this is about: investigating the what-ifs," he said.

## Part 4: LNG pipes in jobs for some Gulf of Mexico towns welcome chance to improve their economies

By Tom Kiskien  
August 31, 2005

**C**AMERON PARISH, La. — At the edge of a swamp, life looks different.

A pool party means the back of a pickup lined with plastic and filled with three things: water, Cajuns in swimsuits and beer. Fishing means huge nets dipping into the Gulf of Mexico to capture brown shrimp and anything else in the way: baby sharks, crabs and pogy fish used to make fertilizer and cosmetics. Progress means anything that brings jobs.

Though portrayed by skeptics as a losing hand in Ventura County, New England and pretty much everywhere else, liquefied natural gas is viewed by many in the bayous as a lucky night on a riverboat casino and maybe the best thing since the oil industry decorated this area with rigs, pipelines and lots of money.

At the marsh 50 steps from his front stoop, "Cajun Ben" Welch Jr. tosses fish to an alligator who, in deference to the free meal, spends his days in the same water.

A 41-year-old entrepreneur with a scarred hand from a long-ago battle with a different alligator, Welch figures this land will be packed with people drawn to the construction jobs LNG could bring — maybe 600, maybe more. He thinks many newcomers would gladly pay \$20 for an airboat tour and a chance to see the 4-foot-gator he calls Boo Boo.

"They're going to come in no matter what," he said, noting a nearby wildlife refuge is designing a 7-mile driving tour. "They're not doing that just for the heck of it. They know something's going to happen."

Something's happening in New England too, but people in gritty, industrial cities like Everett and Fall River worry that LNG plants and proposals may bring different visitors.

"The only thing I worry about is terrorists bombing," said Andrew Navarro Jr., who grew up a bridge away from Boston nearly on top of the nation's oldest LNG import station. Now he lives nearby in Winthrop, where there was talk of a pipeline linking New England to a proposed offshore terminal. "Obviously, you don't always sleep easy," he said.

The LNG rush headed for Ventura County in the form of two proposed offshore stations is nothing compared to the stampede elsewhere. Five import stations currently take natural gas from places such as Trinidad and Algeria and pipe it into the U.S. Four times that many are proposed in the Gulf of Mexico and the land bordering it. Seven more proposals cluster the Atlantic coast beginning north of Boston.

It's as if someone struck gold and everyone wants a piece.

As in Oxnard, the race brings conflict, even in the bayous where people want LNG but worry a cost-saving measure used on offshore terminals could hurt the fishing. California's tug of war is shaped by the concept's novelty — the next import station to be approved would be the first. But people in Cameron Parish and Everett, Mass., have watched LNG tankers chug by their homes "since I was this high," said Navarro, holding his hand at his hip. And while their reactions are shaped by the same fears felt in Ventura County, they are also driven by history, tax revenues and a feeling of powerlessness.



James Glover II / Star staff  
Jimmy Constance, 24, of Hackberry, La., works on a shrimping boat off the coast of Cameron Parish. Some in Louisiana worry that an offshore LNG terminal will hurt shrimping by cooling the ocean water.

### The day things changed

LNG talk soaks Massachusetts like the muggy August heat. People in Gloucester worry that the best places to catch haddock and cod could be compromised by the two companies vying to build offshore stations in almost the exact same waters. Leaders in Fall River say they'll spend \$1 million and may file a lawsuit to fight an onshore terminal planned for their city.

But nowhere is LNG more visible than the edge of Everett. That's where the tanker Berge Boston sits on the Mystic River.

Ships have been coming here for 34 years, making some 600 deliveries to the Distrigas station next to a metal scrap yard. Some people suggest longevity has made LNG routine. But blending is difficult when security helicopters dart back and forth like bees as tankers make their way past Logan International Airport and then the wharfs of downtown Boston. Escort tugboats ride so close they seem glued to the hull. Stopping traffic in the harbor and on Tobin Bridge, the tankers crawl to the edge of the Mystic, turn completely around and back their way to Distrigas.

It takes about 24 hours to unload 35 million gallons of LNG. And on a warm Thursday night in June, the Berge Boston rests about 500 yards behind home plate as the Devil Rays and Red Sox square off in a Charlestown Little League playoff game.



Boys ages 7 and 8 swing for the fences, hanging their heads when all they strike is air. As for the tanker, the kids don't know what it is. Carly Cahill, who is 7, thinks maybe it would be fun to ride on the green boat. Her mother isn't as enthusiastic.

"It scares me, you know," Sharlene Cahill said, punctuating her worst fear with a nervous laugh. "Someone's going to come to town and take us all out."

After the attacks of Sept. 11 made terrorism real, league officials went to a seminar that explained what LNG is and outlined Distrigas' security measures, like the steel barrier designed to stop a 15,000-pound truck doing 50 mph. There's never been serious talk about moving the park or changing the schedule.

"You can't stop the games," explained District 9 administrator Eddie Greateorex.

On the LNG side of the Mystic is Everett. It's a city of 38,000 people, home to a gasoline and diesel fuel storage facility and an LNG-fueled power plant with the capacity to deliver electricity to 1 million homes. Once called the nation's biggest little industrial city, the nickname faded as some employers closed shop. The factory that once produced Charleston Chew candy bars is being renovated into condos. Land that housed a chemical plant is one of the area's newest malls.

There's other change too. Long dominated by Irish- and Italian-Americans, neighborhoods attract more people from Brazil and Algeria. And people who never thought much about the Distrigas plant now argue about LNG and terrorism.

It's because of 9/11. Worried that terrorists who brought down the World Trade Center could target tankers passing through the nation's seventh-largest metropolitan area, government officials wouldn't let LNG ships into the Boston Harbor for more than a month after the attack. Even now, tankers from Algeria go elsewhere and people including Boston Mayor Thomas Menino and former national counterterrorism adviser Richard Clarke worry about the harbor.

"It don't bother me," said Andrew Navarro Sr., a retired electrical contractor who raised his family less than a half-mile from Distrigas. It's a neighborhood some say is crumbling, with homes being knocked down and replaced by a sprawl of body shops and small factories.

Navarro has lived there for 45 years and feels relatively safe because nothing bad has happened at Distrigas. His wife worries and at times so does one of his sons, but Navarro said police and Coast Guard watch the tankers and the terminal. Besides, he wants to keep his lights on.

"It's that or coal," he said of LNG.

Others talk about money. Distrigas pays about \$3.6 million a year in city taxes and recently gave \$750,000 to help build a high school.

"They've been a good neighbor," said Police Chief Steven Mazzie, who has lived here all his life, suggesting LNG spurs economic development that includes a new mall.

But as he drives through Everett, checking on the officers keeping watch over the Berge, Mazzie reveals some of the reasons people worry. Two former Everett residents who drove cabs in Boston were linked by the FBI to Osama bin Laden and one was investigated for a possible connection to the attack on the USS Cole — the kind of assault some experts believe could be waged against an LNG tanker.

All bartender Elena Zannino knows is every time an LNG tanker delivery in Everett coincides with her shift at the old-time tavern called Zeke's, her brother warns her to be careful.

"It's like 'Be careful how? You want me to wear a gas mask?' " she said, suggesting that if a company proposed opening an LNG station in Everett after 9/11 instead of decades before it, everyone would protest. "No town would welcome it. They'd be crazy to welcome it."

In New England and Ventura County, people worry proposed LNG terminals onshore and off will scare away people and businesses. Property values will fall with an almost audible thud.

But in Cameron Parish, LNG means construction jobs, at least two new RV parks for the expected rush of workers and, locals hope, housing prices headed through the roof.

"All I want to do is raise the value so I can get out of here," said the woman working her way through a plate of onion rings at a restaurant called Babe's.

Others could never leave this land of muskrats and sugar cane, where roads are bordered by canals and the cattle are long-horned Brahmas because they tolerate heat and mosquitoes. Hurricane Katrina missed the region when it ripped through the Gulf Coast this week. But the people here are used to hardship, like Hurricane Audrey that ripped apart homes in 1957 and the oil industry that has fallen hard but still provides most of the jobs.

"This area is what we call economically depressed," said Dan Swanson, a fishing captain who is part Cherokee and part Swede. "What do we have down here? Nothing."

Calcasieu Parish, the region just to the north, has owned LNG bragging rights since 1981. Its Trunkline import station is the nation's largest and is being expanded. But now, the LNG industry is also wooing Cameron Parish, Louisiana's biggest region in land but with a population of 9,991 that ranks as the state's smallest.

Two companies, Cheniere and Semptra, are building terminals in the parish. A third company, Excelsate out of Texas, operates a deep-water station 116 miles off the coast. Shell has won federal approval for its own offshore terminal.

That's an appetizer compared to what's coming. Drawn by the region's enthusiasm, companies have proposed building five more onshore or offshore terminals.

"I think it's a savior for Cameron Parish is what it is," said Stevie Trahan, who has lived here all his life. Once a cowboy who went to college on a rodeo scholarship, he works in oil and serves as an elected police juror, Louisiana's version of a county supervisor. His family owns land that an LNG company wants to lease for a proposed terminal.

In addition to any personal profit LNG brings, Trahan calculates each onshore terminal will carry about 300 construction jobs for about three years. After a 10-year exemption that the state dangles as a carrot to companies, each terminal will generate about \$6 million in taxes for a parish with an annual budget of \$8 million.

"We could blacktop some roads with that," Trahan said.

### Dealing with threats

There's controversy, but it doesn't focus on al-Qaida. People in the bayous look at that differently too.

Gathered around an old bench, they worry about shrimp, oysters and red snapper. The Excelsate terminal in the Gulf uses ocean water to warm LNG and transform it into gas. The water goes back in the ocean about 13 degrees colder. Shell's terminal would use the same process.

Called an open loop system, its attraction is money. Using ocean water saves Excelsate about \$350,000 for each delivery compared to the closed-loop systems proposed near California that do not involve seawater.

Sport fishermen and shrimpers fear colder water could kill plankton and fish eggs, meaning fewer red snapper and shrimp. Gov. Kathleen Babineaux Blanco says she'll veto open-loop terminals.

The way shrimp boat captain Monroe Gray sees it, his livelihood is hurting even without LNG. The price of shrimp is diving while the cost of diesel gas for boats is headed the other way. Messing with the supply is the last thing shrimpers need.

"I don't want to take a chance," he said. "Why take a chance? I don't know anyone who is for it."

But the 61-year-old fisherman who owns a mobile home but still spends most nights sleeping on his boat wants LNG for the same reasons everyone else wants it: jobs and tax revenue. And while people in California and Massachusetts speculate on the disaster that could happen in an accident or attack, Gray and his friends have their own sport: making fun of people who don't want LNG.

"Take away all their air conditioning," he said. "They'll change their tune."

### Feeling powerless

Cameron Parish wants it. Fall River doesn't. Ventura County is up for grabs. Some say it doesn't matter what communities want because the complaints, when it comes to LNG, fall on deaf ears.

They contend the LNG industry targets places that need jobs and tax revenue and have a history of not mobilizing, even in the face of controversy.

"We're a sacrifice zone," said Michael Tritico, leader of a 12-member group called RESTORE that opposes LNG in southwest Louisiana. He argues industry leaders know people will accept any risk as long as it brings a paycheck. "Everything is here that they need, especially uneducated, cheap labor."

In Oxnard, LNG opponents paint the same picture with different brush strokes.

They complain the city has been earmarked for import stations because its population is about 66 percent Hispanic.

"Latinos in general are viewed as not having the political clout," said David Rodriguez, a national vice president for the League of United Latin American Citizens, contending LNG companies make very deliberate decisions. "We think they evaluate what the political opposition is."

Rodriguez and others argue the approval system is designed so the wants of people in places like Oxnard, Everett and Cameron Parish carry limited influence. They say companies are allowed to impose

their will as long as they gain the support of federal leaders and, in the case of offshore terminals, a state's governor.

"We are handcuffed," said Oxnard City Councilman Andres Herrera. "We are the ones who are going to be most affected, but we have the least say so."

LNG representatives say the arguments are driven by misinformation. They say there's been so much attention focused on tankers and terminals that everyone in every community has heard arguments about terrorism and public safety. There are no easy marks.

Paul Soanes' Crystal Energy wants to convert an oil platform off Ventura County's coast into an LNG station. He says Oxnard's demographics aren't an issue. Instead, LNG companies are drawn by the region's need for natural gas, deep-water port, relative shelter from wind and waves and the existing network of pipelines.

"It doesn't get any better than this," he said.

All energy companies emphasize how closely they work with local communities. But in Massachusetts, Hess LNG won government approval for an LNG plant in Fall River though local officials fought fiercely to keep it out. And in an office outside of Houston, Texas, the president of an energy company planning an offshore terminal in northern New England said plans will continue whether the nearest city, Gloucester, opposes it or not.

"I don't know if you can satisfy everyone at all times," said Kathleen Eisbrenner, who leads Excelerate Energy, which operates a terminal near Louisiana and has offshore plans in Northern California.

The two LNG firms eyeing Ventura County's coast need coastal development permits from Oxnard and the county to develop their projects. But if those are denied, the companies can appeal to the California Coastal Commission.

Soanes won't say what Crystal will do if local governments say no.

"Our intent is to try to walk in lock-step with the local community," he said. "I'd be naive if I'd say I expect us to win over the support of everybody in the community. That just seems to be unlikely."

## Massachusetts mayor says industry has targeted his town

By Tom Kiskien  
August 31, 2005

FALL RIVER, Mass. -- Mayor Edward Lambert collects hats from as far away as Paris, France, and as nearby as Fenway Park and his beloved Red Sox.

But one cap is missing from the headgear that decorates an office shelf. Hess LNG, the company that wants to build the terminal Lambert is convinced will jeopardize his city's safety, offered him a hat bearing its logo. Lambert, who says the city will spend \$1 million to fight LNG, doesn't always have it on display but has special plans for the souvenir.

"I'll do something special with that hat at the waterfront," he said, flashing a wicked grin.

Lambert has become a national symbol for the fight against LNG. He's gone to Washington, lobbied senators and says he'd knock on the door of the Oval Office, anything to prevent the LNG terminal proposed for the Taunton River in north Fall River.

His fight didn't stop the Federal Energy Regulatory Commission from approving Hess LNG's plans to build in Fall River, but Lambert says he'll keep battling and, if the decision isn't changed on appeal or defeated on other fronts, the city will sue.

He worries most that the terminal, planned within a mile of 5,100 homes, would attract terrorists, but also argues fear of LNG would scare away residents and drive property values down.

"There's no doubt in my mind that the industry targets places like Fall River," said Lambert, claiming that Hess emphasized the tax revenue and jobs it would bring to a city where people complain of potholes and have one of the state's highest unemployment rates, about 7 percent. "They were arrogant about it. They think we're not smart enough. We're not tough enough."

Lambert's words have gained attention in Oxnard.

"If we could have the same thing here, I would feel a lot better," said former Oxnard Mayor Manny Lopez, urging current city officials to be as aggressive as Lambert.

But ask the Fall River mayor about offshore terminals, like the two proposed near Ventura County, and he offers a surprise.

He thinks offshore sites are OK because LNG is needed and the risks decrease if sites are placed away from cities and on the ocean.

“The difference between onshore and offshore really is life and death,” he said.

## LNG’s job impact

By Tom Kiskien

August 31, 2005

One LNG terminal off Ventura County’s coast would mean 400 or more temporary pipeline or platform construction jobs and as many as 60 permanent positions, according to the two companies that want to operate offshore import stations.

BHP Billiton’s floating Cabrillo Port about 14 miles from the border of Ventura and Los Angeles counties would pump as much as \$83 million into the economy during construction and about \$13 million a year after the port opened, according to a draft environmental impact report. That includes salaries and local supplies and services.

Crystal Energy’s plan to transform Platform Grace into an LNG terminal would pump about \$90 million during construction and as much as \$25 million a year once the port is operational, according to the University of California, Santa Barbara, Economic Forecast Project. The university group was commissioned by Crystal to study economic effects. By comparison, one of the county’s largest employers, biotech giant Amgen, has a payroll reported at about \$759 million, prompting one economic development expert to suggest its workers spend as much as \$2.5 billion a year in the local economy.

The LNG contributions are a fraction of that but would still make a difference, said Howard Smith, chairman of the board for the Ventura County Economic Development Association.

“Every new dollar that comes into a community tends to multiply seven-fold,” he said, referring to the economic development world’s version of the trickle-down theory.

Others view LNG’s economic impact on Ventura County with skepticism, noting that offshore terminals won’t bring direct property tax contributions.

“I haven’t seen anything that demonstrates to me that there would be a financial benefit” said Oxnard City Councilman Andres Herrera, referring to the projections for jobs and money pumped into the economy. “I’m not one to judge whether they’re accurate or not, but I’m sure we can make numbers work any way we want them to.”

P361-A04-1

This is one of seven files Thomas C. Nielsen submitted on a CD to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The other six files on the CD are included as 2006 Comment Letter Attachments P361-A01, P361-A02, P361-A03, P361-A05, P361-A06, and P361-A07.

**CALIFORNIA PUBLIC UTILITIES COMMISSION**

P361-A04-1

**CALIFORNIA NATURAL GAS INFRASTRUCTURE OUTLOOK**

**2002 – 2006**

**NOVEMBER 2001**

**This Report Does Not Pre-Judge Official  
Commission Proceedings**

In order to prepare a 5-year forecast of natural gas demand, the CPUC has relied extensively upon data provided by the utilities, the CEC, and other parties. As part of the CPUC's on-going regulation of the natural gas industry, some of the data and assumptions contained in this report are currently, or may in the future, be contested in proceedings before the CPUC, FERC and other regulatory/judicial forums.

To avoid pre-judging the outcome of these proceedings, and to preserve due process rights for all interested parties, the data and assumptions contained in the report are subject to further verification and revision until officially adopted by the CPUC in the course of a proceeding.

The Commission's Energy and Strategic Planning Divisions prepared this report. The principle authors are Richard Myers, Sepideh Khosrowjah and James Hendry.

<b>EXECUTIVE SUMMARY .....</b>	<b>V</b>
<b>CHAPTER 1.....</b>	<b>1</b>
<b>AN OVERVIEW OF CALIFORNIA'S NATURAL GAS INFRASTRUCTURE.....</b>	<b>1</b>
<b>A. REGULATORY HISTORY AND CURRENT STRUCTURE.....</b>	<b>2</b>
<b>B. CALIFORNIA'S NATURAL GAS PRIMARILY COMES FROM OUT OF STATE .....</b>	<b>6</b>
<b>C. CALIFORNIA RELIES ON FOUR MAJOR INTERSTATE PIPELINES TO BRING GAS TO THE CALIFORNIA BORDER .....</b>	<b>7</b>
<b>D. UTILITY GAS TRANSMISSION AND DISTRIBUTION SYSTEMS TAKE GAS FROM INTERSTATE PIPELINES TO CONSUMERS.....</b>	<b>9</b>
<b>E. THE PG&amp;E, SoCALGAS, AND SDG&amp;E IN-STATE GAS TRANSMISSION SYSTEMS.....</b>	<b>11</b>
<b>F. NON-UTILITY DELIVERIES FROM BYPASS PIPELINES AND CALIFORNIA PRODUCERS SUPPLIED 17% OF THE NATURAL GAS CONSUMED IN CALIFORNIA .....</b>	<b>15</b>
<b>G. CALIFORNIA'S STORAGE IMPROVES SYSTEM RELIABILITY AND PRICE STABILITY .....</b>	<b>16</b>
<b>H. CPUC HAS IDENTIFIED WHERE INFRASTRUCTURE IMPROVEMENTS ARE NEEDED, AND PROJECTS ARE PROGRESSING.....</b>	<b>18</b>
<b>CHAPTER 2.....</b>	<b>25</b>
<b>LEARNING FROM THE EVENTS OF 2000 -- 2001.....</b>	<b>25</b>
<b>A. A COMBINATION OF UNUSUAL EVENTS LED TO EXTREMELY HIGH NATURAL GAS PRICES AND SUPPLY SHORTAGES IN 2000-2001 .....</b>	<b>25</b>
<b>B. THE DRAMATIC INCREASE IN THE CALIFORNIA BORDER PRICE WAS NOT CAUSED BY INADEQUATE NATURAL GAS INFRASTRUCTURE IN CALIFORNIA .....</b>	<b>30</b>
<b>C. POSITIVE OUTLOOK FOR NATURAL GAS SYSTEM AS WE GO INTO WINTER 2001 - 2002 .....</b>	<b>31</b>
<b>CHAPTER 3.....</b>	<b>32</b>
<b>STATE AND UTILITY FORECASTS FOR 2002 TO 2006 .....</b>	<b>32</b>

A. CALIFORNIA'S NATURAL GAS INFRASTRUCTURE CAN MEET FORECAST  
DEMAND UNDER ADVERSE WEATHER CONDITIONS ..... 33

B. DEMAND FROM GAS-FIRED ELECTRIC GENERATING PLANTS SHOULD  
DECLINE ..... 36

C. CONSERVATION AND ECONOMIC UNCERTAINTY AFFECT GAS DEMAND... 40

D. FORECASTS FOR 2002-2006 INDICATE THAT CALIFORNIA'S NATURAL  
GAS INFRASTRUCTURE WILL BE ADEQUATE DURING THE NEXT FIVE YEARS  
UNDER LIKELY WEATHER AND HYDROELECTRIC SCENARIOS ..... 41

CHAPTER 4..... 55

CONCLUSIONS AND RECOMMENDATIONS ..... 55

A. CONSERVATION, RENEWABLE ENERGY, AND MORE EFFICIENT  
PRODUCTION OF ELECTRICITY WILL REDUCE DEMAND ON CALIFORNIA'S  
NATURAL GAS INFRASTRUCTURE..... 55

B. IMPROVED COORDINATION BETWEEN ELECTRIC AND GAS OPERATIONS  
CAN ENHANCE GAS SYSTEM RELIABILITY..... 57

C. THE POWER AUTHORITY SHOULD NOT FUND NEW GAS INFRASTRUCTURE  
PROJECTS ..... 58

D. THE CPUC SHOULD CONTINUE TO EVALUATE THE NEED FOR GAS  
INFRASTRUCTURE EXPANSIONS..... 59



## **EXECUTIVE SUMMARY**

The California Public Utilities Commission (CPUC) regulates the rates and services of California's natural gas utilities, including backbone gas transmission systems, local gas transmission, storage, gas distribution, and gas procurement. To assist state policymakers in the evaluation of California's natural gas infrastructure system, and in conformance with the directives of Senate Bill 6 (Burton and Bowen) of the First Extraordinary Session, 2001, the CPUC has issued its 2002-2006 California Natural Gas Infrastructure Outlook report.

The report assesses California's natural gas transportation and storage system, and concludes that it is adequate to provide seasonally reliable amounts of competitively priced natural gas to residential, commercial, industrial, and electric generation customers. Therefore, the CPUC recommends that the Power Authority should not finance any new natural gas projects.

The report also reviews the events that led to high natural gas prices in California in 2000 and 2001, and the steps that are underway to ensure the reliability of the state's natural gas system for the coming years.

## **CHAPTER 1**

### **AN OVERVIEW OF CALIFORNIA'S NATURAL GAS INFRASTRUCTURE**

#### **California's Natural Gas Infrastructure at a Glance**

##### **California and Federal Regulators Each Have Roles in Regulating Natural Gas Infrastructure**

- The California Public Utilities Commission (CPUC) regulates rates and services of California's investor-owned natural gas utilities, and the infrastructure necessary to provide that service.
- The Federal Regulatory Commission (FERC) regulates the rates and services of the interstate natural gas pipelines.

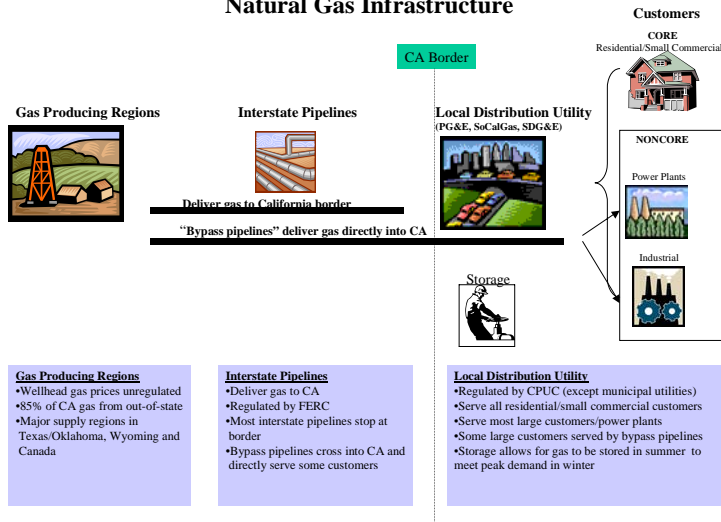
##### **California Consumed Approximately 6,500 Million Cubic Feet per Day of Natural Gas in 2000**

- 85% of California's natural gas comes from the Southwest, Wyoming, and Canada.
- 15% of California's natural gas is produced from in-state natural gas fields.

##### **Natural Gas is Transported and Distributed to and Within California Through an Interconnected Network**

- Four major interstate pipelines can deliver up to 7,187 million cubic feet of gas per day to California from out of state sources.
- PG&E, SoCalGas, and SDG&E delivered 83% of California's natural gas in 2000, with 17% supplied directly to large customers by interstate pipelines and in-state production.
- Storage facilities provide 172,000 million cubic feet of in-state inventory to help meet demand peaks.

## Natural Gas Infrastructure



## A. REGULATORY HISTORY AND CURRENT STRUCTURE

The California Public Utilities Commission (CPUC) regulates the rates and services of the California gas utilities for their *in-state* gas transmission, distribution, storage, and procurement services.<sup>1</sup> The Federal Energy Regulatory Commission (FERC) regulates prices, services, and the construction of the *interstate* pipelines that serve California.<sup>2</sup>

Historically, California's natural gas utilities were vertically integrated – they provided all gas services to their customers, including procurement, transportation, storage, distribution, metering, and billing. The two largest-vertically integrated gas utilities in

Chapter 1
<ul style="list-style-type: none"> <li>Regulatory history</li> <li>Where California's gas comes from</li> <li>How out-of-state gas gets to the border</li> <li>How gas gets from the border to the customer</li> </ul>

<sup>1</sup> Transmission refers to the delivery of natural gas through large-diameter, high-pressure long-distance pipelines; distribution refers to the delivery of natural gas from the city-gate to customers; procurement refers to the purchase and sale of the natural gas commodity.

<sup>2</sup> Although the Kern River pipeline has a segment within California, and the Mojave and Kern/Mojave pipelines are completely located within California, they are interstate pipelines regulated by the FERC.

California purchased most of their natural gas under long-term contracts with the interstate pipelines at federally regulated prices, and delivered the gas to wholesale<sup>3</sup> and retail customers at rates established by the CPUC.

The regulation of natural gas utilities was transformed following the passage of the federal Natural Gas Policy Act (NGPA) in 1978. The NGPA, which Congress adopted in response to regional gas supply shortages, established a schedule for eliminating wellhead price controls to promote increased production of natural gas. By the early 1980s, supply shortfalls turned to surplus, and a natural gas spot market developed at the wellhead in the producing regions.

The availability of cheap natural gas supplies on the spot market led federal policymakers to adopt a series of regulatory initiatives to release utilities from high-priced, long-term purchase contracts with the interstate pipelines and to open up transportation service on the pipelines.

- Order 380, issued in 1984, modified the utilities' contract obligations to pay for high-priced gas from the interstate pipelines. This order enabled utilities to purchase lower-priced natural gas directly from wellhead suppliers.
- Order 436, issued in 1984, allowed utilities and large customers to transport their own natural gas on the interstate pipelines.
- Order 636, issued in 1992, established procedures for shippers<sup>4</sup> with firm interstate pipeline capacity rights to market this capacity to others. The assignment of pipeline capacity under Order 636 is called "capacity brokering."

In tandem with the reforms at the federal level, the CPUC established a new regulatory framework for California's gas utilities to give the largest gas users access to the spot market and to allow them to make their own gas purchase arrangements. In 1988, the CPUC split gas utility customers into two main customer groups: core and noncore customers.

---

<sup>3</sup> SDG&E, Southwest Gas, and the cities of Vernon and Long Beach are wholesale customers of SoCalGas. The cities of Palo Alto and Coalinga are wholesale customers of PG&E.

<sup>4</sup> Shippers are utilities, large users, producers, and marketers transporting their own natural gas on a pipeline.

Core customers, primarily residential and small commercial consumers, continued to receive natural gas, transportation, storage, and related services from a vertically integrated and regulated utility.

Noncore customers, including large commercial, industrial, and electric generation consumers, were given the option of making their own gas supply arrangements by buying gas directly from producers or from marketers<sup>5</sup>, and having the utility deliver the gas from the California border to the customer. Noncore customers

no longer had to pay for the interstate capacity that the utility had originally obtained for all customers.<sup>6</sup> In the early 1990's, the CPUC allowed core customers to purchase gas supplies from a marketer rather than the regulated gas utility.

<b>“Core” and “Noncore” Customers</b>	
<b>Core Customers</b>	
<ul style="list-style-type: none"> <li>• Residential and small commercial customers who typically receive full service (procurement, transmission, storage, distribution, metering, and billing) from the regulated utility.</li> </ul>	
<b>Noncore Customers</b>	
<ul style="list-style-type: none"> <li>• Large commercial, industrial, and electric generation customers who use more than 20,800 therms per month.</li> <li>• May buy their own natural gas and pay for interstate pipeline transportation service, or purchase natural gas directly from a marketer at the California border.</li> </ul>	

In 1990, responding to a shortage of interstate pipeline capacity to California, the CPUC adopted a “let the market decide” policy for new interstate pipeline capacity proposals.<sup>7</sup> Prior to this policy shift, large noncore gas customers had experienced significant curtailments<sup>8</sup> and in response, numerous pipeline companies proposed expansions of interstate capacity to California.

Under its “let the market decide” policy, the CPUC supported those expansions that had the financial backing of market participants. The CPUC and the FERC shared the view

<sup>5</sup> Following the development of the gas spot market in the early 1980s, marketers and brokers emerged as buyers and resellers of the natural gas commodity in the new industry framework.

<sup>6</sup> Noncore customers paid a share of the “stranded costs” associated with the utilities’ interstate capacity costs, which the utilities were unable to recover from the market. See Decisions (D.) 91-11-025, and D. 92-07-025.

<sup>7</sup> Decision (D.) 90-02-016 presents the CPUC’s findings regarding the need for new interstate pipeline capacity in 1990 and the policies for supporting specific new pipelines and expansion projects.

that shippers, who wanted additional pipeline capacity into the state, had to be willing to pay for that capacity. The CPUC policy did not require California's existing utility customers to pay for any of the proposed expansions in their utility bills. Ultimately, new interstate pipelines bringing gas into California were built, several existing pipelines were expanded, and the utilities expanded their systems to take delivery of the new gas supplies.

Restructuring efforts also affected storage infrastructure and intrastate natural gas transmission systems. In 1993, the CPUC "unbundled" noncore storage services.<sup>9</sup> This action removed the utilities from the responsibility for providing storage services for noncore customers, and removed the cost of storage from noncore rates. To the extent noncore customers want storage from the utility, they must now directly contract and pay for such services. The CPUC also adopted specific storage reservation levels for the utilities' core customers. Finally, the CPUC adopted a "let the market decide" policy with regard to the construction or expansion of in-state storage facilities.

In 1997, the CPUC allowed customers and marketers to obtain capacity rights on PG&E's intrastate backbone natural gas transmission system,<sup>10</sup> allowing them to match their interstate capacity with intrastate transportation capacity. The Commission is now considering whether to restructure the SoCalGas system to allow a similar approach in southern California.<sup>11</sup>

---

<sup>8</sup> In D. 90-02-016, the CPUC found that, "California has experienced four curtailments of noncore gas service within the last three years, including three of the four winters since open access transportation first became available to California."

<sup>9</sup> The CPUC unbundled noncore storage services in Decision (D.) 93-02-013.

<sup>10</sup> See Decision (D.) 97-08-055, which adopted the PG&E Gas Accord.

<sup>11</sup> See Investigation (I.) 99-07-003, and the Proposed Decision of Commissioner Bilas filed in that docket on October 10, 2001, and the November 26, 2001 draft alternate of Commissioner Wood.

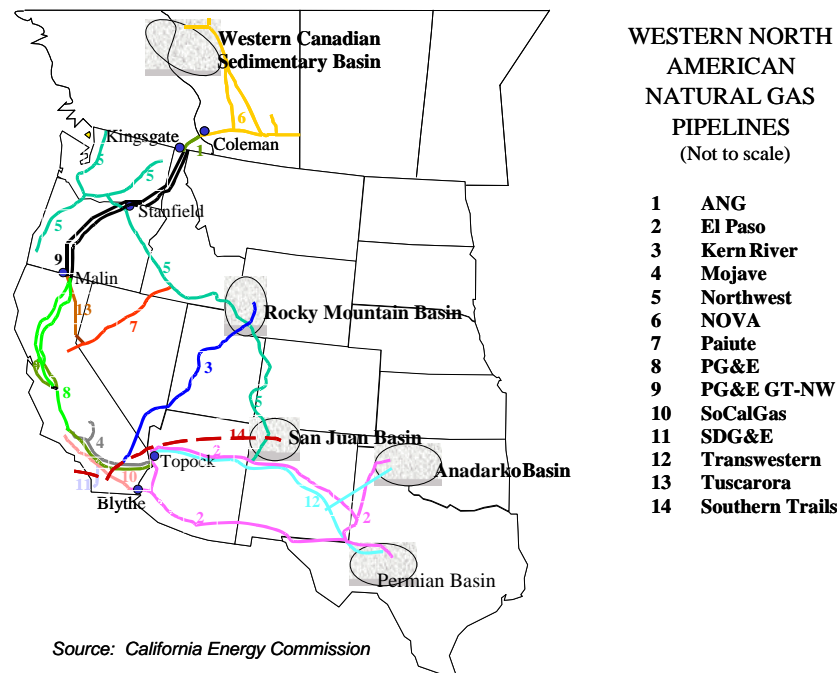
## B. CALIFORNIA'S NATURAL GAS PRIMARILY COMES FROM OUT OF STATE

California relies on a geographically diverse portfolio of natural gas delivered through an interconnected interstate pipeline system (see Figure 1-1). The following map shows the location of supply basins from which California receives its natural gas and the location of interstate pipelines that deliver gas to the state.

### California's Sources of Natural Gas

- California receives 85% of its gas from the Southwest, Rocky Mountains, and Canada, with 15% produced in-state.
- Four large interstate pipelines can bring 7,187 million cubic feet of gas per day to California.

**Figure 1-1: California's Interconnected Pipeline Network**



### C. CALIFORNIA RELIES ON FOUR MAJOR INTERSTATE PIPELINES TO BRING GAS TO THE CALIFORNIA BORDER

Table 1-1: Interstate Pipeline Delivery Capacity to California

	<u>MMcfd</u>
<b><u>From the Southwest</u></b>	
El Paso Pipeline	
-- Northern System @ Topock	2,080
-- Southern System @ Blythe	1,210
Transwestern Pipeline @ Needles	1,090
<b><u>From the Rocky Mountains</u></b>	
Kern River Gas Pipeline	835
<b><u>From Canada</u></b>	
PG&E Gas Transmission-Northwest <sup>12</sup>	<u>1,972</u>
<b>TOTAL DELIVERY CAPACITY</b>	<b>7,187</b>

In addition to California's in-state natural gas production of about 1,000 million cubic feet per day (MMcfd), California relies on gas delivered through the El Paso, Transwestern, Kern River and PG&E interstate pipelines. These interstate pipelines are able to supply 7,187 MMcfd.<sup>13 14</sup>

California's natural gas usage averaged 6,536 MMcfd in 2000. Figure 1-2 shows California's natural gas supply portfolio for the last five years.

<sup>12</sup> On cold winter days the capacity at Malin (Northern California border) can drop below 1,803 MMcfd because of high demand in the Pacific Northwest.

<sup>13</sup> *California Gas Report, 2000*. This annual report is prepared by California's natural gas utilities.

<sup>14</sup> For context, the average daily household consumes 500 therms per year (.000136 MMcfd).

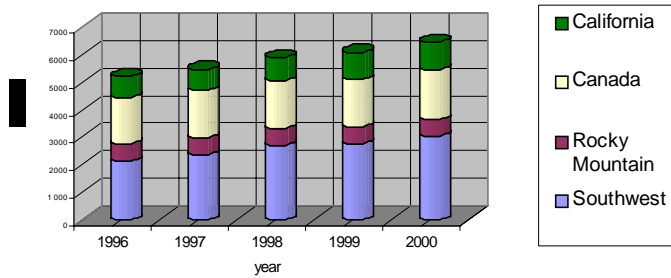


**Table 1-2: California's Gas Supply Portfolio in 2000**

Source	MMcfd	Percentage
Southwest	3,041	47%
Rocky Mountain	596	9%
Canada	1,821	28%
California	991	15%
Total	6,536 <sup>15</sup>	100%

*Source: 2001 California Gas Report*

**Figure 1-2: California Gas Supply Portfolio 1996-2000**



*Source: 2001 California Gas Report*

<sup>15</sup> Net withdrawal from storage of 87 MMcfd in 2000 is included in the total.

## D. UTILITY GAS TRANSMISSION AND DISTRIBUTION SYSTEMS TAKE GAS FROM INTERSTATE PIPELINES TO CONSUMERS

The utilities' gas transmission systems move gas from the border to customers. Compared to the 7,187 MMcfd of interstate pipeline delivery capacity to California currently in place, PG&E's and SoCalGas' backbone systems have a combined receipt capacity of as much as 6,100 MMcfd at their points of interconnection with the interstate pipelines. SoCalGas' backbone system expansion of 375 MMcfd, which will be completed by the 1<sup>st</sup> quarter of 2002, will add at least 250 MMcfd to California's receipt capacity, and up to 335 MMcfd.<sup>16</sup> By November 2002, PG&E's expansion of Line 401, the Redwood Path, will increase California receipt capacity from interstate pipelines by an additional 200 MMcfd. With these expansions, the utilities will have a total of about 6,600 MMcfd of receipt capacity from interstate pipelines.

### How California Moves Gas Within The State

#### Utility Deliveries

- PG&E and SoCalGas have extensive long range, high-volume transportation pipelines – the "backbone" transmission system.
- PG&E, SoCalGas, and SDG&E provide gas distribution infrastructure to move gas from the high-volume pipelines to end-use customers – the "local" transmission system and distribution system.

#### Non-Utility Delivery

- Some large users can get their gas without using their local utility for delivery service. This bypass accounts for roughly 17% of the state's total usage per year.

### BYPASS PIPELINES<sup>17</sup> CAN DELIVER NATURAL GAS DIRECTLY TO LARGE END-USERS OR TO THE UTILITIES' SYSTEMS.

The Kern River Pipeline (835 MMcfd delivery capacity) and the Mojave Pipeline (400 MMcfd) connect at Daggett to become the Kern/Mojave pipeline within California. Of the total 1,235 MMcfd of capacity, Kern River and Mojave delivered 537 MMcfd in 2000 directly to end-users bypassing the utilities. In addition, Kern River delivered 250 MMcfd

<sup>16</sup> SoCalGas' expansion of Line 85 for 40 MMcfd to take delivery of California gas production, which is included in the 375 MMcfd expansions, does not add to interstate pipeline receipt capacity.

<sup>17</sup> "Bypass" pipelines are interstate pipelines that can directly serve large customers without using the utilities' transmission systems. Kern River and Mojave are the first bypass pipelines to serve California.

to SoCalGas and 52 MMcfd to PG&E. Mojave delivered 95 MMcfd to SoCalGas in 2000.

**IN-STATE PRODUCTION REDUCES THE AMOUNT OF INFRASTRUCTURE NEEDED.**

In-state California gas production has increased 25% over the last five years, from about 800 MMcfd in 1996 to about 1,000 MMcfd in 2000. The California Energy Commission estimates that California production has the potential to grow over the next two decades to over 1,200 MMcfd.

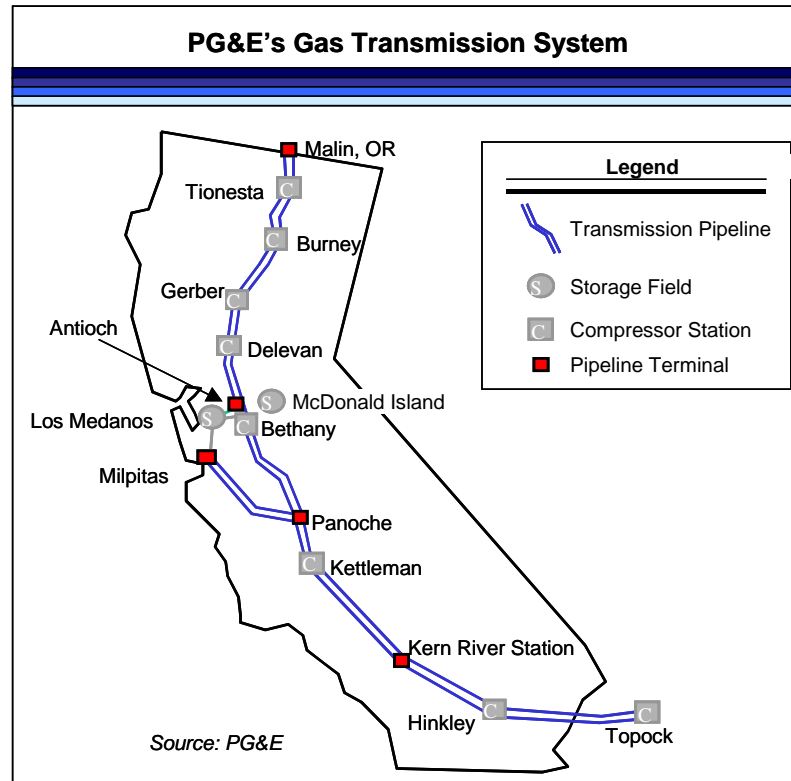
**In-State Natural Gas Production  
Meets 15% Of Total Need**

- In 2000, California in-state gas production accounted for 15%, about 1,000 MMcfd, of total supply to customers.
- About half of California's in-state production is sold directly to end-users, with the remainder purchased by PG&E and SoCalGas.

## E. THE PG&E, SoCALGAS, AND SDG&E IN-STATE GAS TRANSMISSION SYSTEMS

### PG&E'S GAS TRANSMISSION SYSTEM

PG&E's gas transmission system capacity is greater than the average demand experienced in 2000. In the winter, PG&E can receive and deliver 3,375 MMcfd, 130% of its 2000 demand. In warmer seasons, PG&E can move 3,241 MMcfd, 128% of its 2000 demand.<sup>18</sup>



PG&E gets the gas for its transmission system from three main points. Gas from the Southwest and Rocky Mountains is transported from the border with Arizona at Topock

<sup>18</sup> Natural gas becomes denser as the temperature decreases. Consequently, more gas can be delivered through the same pipe in winter than in summer.

to Milpitas in the South Bay across the Baja Path<sup>19</sup> (also called Line 300<sup>20</sup>). Gas from Canada is transported to the middle of California (Panoche and Antioch) via the Redwood Path (Line 400/401) from the Oregon border at Malin. The natural gas produced in California is transported along the Silverado Path. Table 1-3 shows the firm capacity and the “as-available” capacity on PG&E’s system compared to the quantity of gas it can receive from the interstate pipelines.<sup>21</sup>

**Table 1-3: PG&E’s Transmission System Capacity (MMcfd)**

<i>Receipt Points</i>	<i>Firm Capacity</i>	<i>Summer As Avail</i>	<i>Summer Total</i>	<i>Winter As Avail</i>	<i>Winter Total</i>
Southwest (Baja Path)					
El Paso	1,140	0	1,140	0	1,140
Transwestern (Topock)	400	0	400	0	400
Kern River GT (Daggett)	300	0	300	0	300
Total Baja Path	1,140	0	1,140	0	1,140
Canada (Redwood Path) <sup>22</sup>	1,803	98	1,901	232	2,035
California (Silverado Path)	>200	N/A	>200	N/A	200
Total	3,143	98	3,241	232	3,375

### **SoCalGas’ GAS TRANSMISSION SYSTEM**

SoCalGas has sufficient capacity to meet the demand of its customers. SoCalGas can receive and deliver 3,500 MMcfd, 111% of its average 2000 demand with additional interruptible capacity<sup>23</sup> of about 230 MMcfd. Table 1-5 shows the firm and interruptible<sup>24</sup> capacity of SoCalGas’ system from interstate pipelines and California production at receipt points in California.

<sup>19</sup> Path refers to a particular pipeline or pipelines which travel through a particular area, for example Baja Path consists of Line 300 and Redwood Path consists of Lines 400/401.

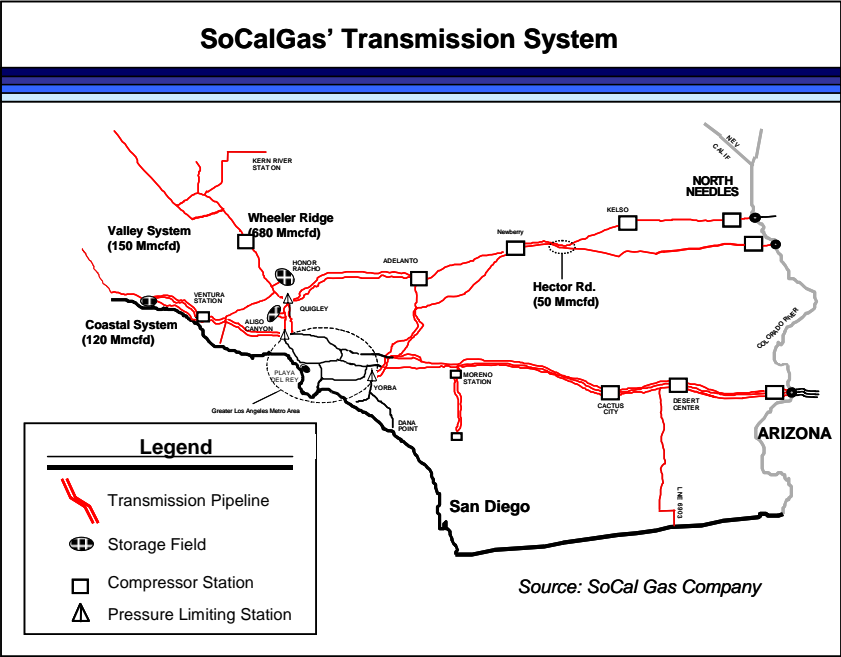
<sup>20</sup> Line refers to a particular pipeline.

<sup>21</sup> “Firm” pipeline capacity is capacity that is available for use 365 days per year. “As available” capacity is capacity that is available intermittently or on a seasonal basis.

<sup>22</sup> On cold winter days the capacity at Malin (Northern California border) can drop below 1,803 MMcfd because of high demand in the Pacific Northwest.

<sup>23</sup> Interruptible capacity is total operating capacity minus firm capacity; it is also called “as available” capacity.

<sup>24</sup> “Firm” pipeline capacity is capacity that is available for use 365 days per year. “Interruptible” capacity is capacity that is available intermittently or on a seasonal basis.



**TABLE 1-4: SoCalGas' Transmission System Capacity From Interstate Pipelines and In-State Production**

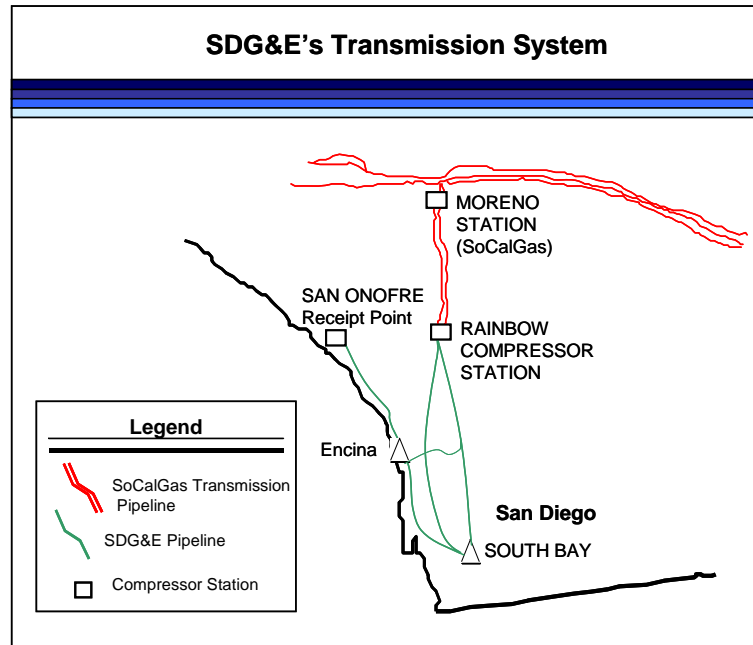
Receipt Points	Firm Capacity (MMcfd)	Interruptible Capacity (MMcfd)
El Paso		
Topock (in AZ at AZ/CA Border)	540	5
Blythe (Riverside County)	1,210 <sup>25</sup>	60
Transwestern		
Needles (San Bernardino County)	750	50
Mojave		
Hector Road	50	0
Kern/Mojave		
Wheeler Ridge	680	120
California Production:		
Line 85 and Coastal	270	60
Total	3,500	231 <sup>26</sup>

<sup>25</sup> SoCalGas is able to receive 1,410 MMcfd at the Blythe connection, but El Paso cannot deliver more than 1,210 MMcfd.

<sup>26</sup> Total interruptible capacity is less than the sum due to system operating constraints.

### SDG&E's GAS TRANSMISSION SYSTEM

SDG&E takes delivery from SoCalGas as a wholesale customer. Natural gas enters the SDG&E system through its connections to the SoCalGas system at the Rainbow and San Onofre Metering Stations. Maximum capacity at the Rainbow Station is 635 MMcfd in the winter and 615 MMcfd in the summer. The San Onofre Station capacity is about 30 MMcfd.



SDG&E's maximum natural gas transmission system capacity is 665 MMcfd in the winter and 645 MMcfd in the summer. With an operational reserve margin<sup>27</sup> of 45 MMcfd, SDG&E's winter capacity is 620 MMcfd, and summer capacity is 600 MMcfd.<sup>28</sup>

<sup>27</sup> SDG&E's reserve margin is the difference between the maximum operating capacity and the amount of capacity SDG&E offers to core customers and firm noncore customers. This reserve margin takes into account potential scenarios that could limit gas deliveries. For example, 45 MMcfd is the reduction in system capacity if a 3000 HP compressor were to go down at the Moreno Compressor Station. Capacity may be reduced by other unforeseen circumstances; the reserve margin is a proxy for those situations.

SDG&E currently delivers natural gas to Mexico for electric generation facilities at the Presidente Juarez Power Plant in Rosarito, Mexico. SDG&E may reduce deliveries to the Rosarito facility in September 2002, if the North Baja pipeline is operational. This new interstate pipeline would deliver Southwest gas from the California/Arizona border to the Mexico border at Yuma, Arizona.

**F. NON-UTILITY DELIVERIES FROM BYPASS PIPELINES AND CALIFORNIA PRODUCERS SUPPLIED 17% OF THE NATURAL GAS CONSUMED IN CALIFORNIA**

**Non-Utility Gas Deliveries**

---



---

- Some large customers are able to obtain natural gas supplies without using the local utility to deliver the natural gas.
- The California Gas Report shows 1,089 MMcfd of bypass load in 2000, about 17% of total California usage of 6,536 MMcfd.
- Customers that take non-utility gas deliveries (also called bypass customers) consist almost entirely of electric generators, industrial users, and oil producers using natural gas for enhanced oil recovery in the Kern County area.

Bypass pipelines affect the CPUC's regulation of the local distribution utilities. New bypass pipelines provide additional infrastructure to serve California's gas demand. If large gas users leave the utilities' system to take service from a bypass pipeline, the utilities may be left with stranded investment in capacity that had been built to meet that former load. As a result, the CPUC may have to raise rates for the utility's remaining customers to pay for this stranded infrastructure, or utility shareholders may have to write off the cost of the investment. Thus, although some customers may benefit from lower rates by taking service from a bypass pipeline, others may have to pay more. The

---

<sup>28</sup> In addition to the 45 MMcfd reserve margin, SDG&E has up to 64 MMcfd in linepack capacity that can be used to balance sudden increases in demand or shortage of flowing supply. Linepack provides temporary daily storage of flowing supply within the pipeline.



CPUC has tried to address this problem through its rate design and cost allocation policies to minimize the “uneconomic” bypass of the existing utility system.

Traditionally, oil producers and refiners using California-produced natural gas in their own operations have bypassed the utilities. California producers sold about half (552 MMcfd) of their gas production directly to end-users in 2000.

The Kern River and Mojave pipelines were the first interstate pipelines to provide direct service to large gas users within California. The Kern River/Mojave pipeline made direct deliveries of 537 MMcfd in 2000 to end-users.

### **G. CALIFORNIA’S STORAGE IMPROVES SYSTEM RELIABILITY AND PRICE STABILITY**

Natural gas storage is used to meet peak demands reliably and as a hedge against market price fluctuations for gas. Natural gas demand changes with weather, power generation requirements, economic activity, and other factors.

Benefits of Storage	
	<ul style="list-style-type: none"> <li>• Protects consumers from supply shortages and short term price spikes.</li> <li>• Gas is pumped into storage during spring and summer, when gas prices tend to be low and there is unused transmission capacity.</li> <li>• Gas from storage used when prices are high and when peak demand begins to reach the maximum capacity of the transmission system.</li> </ul>

Utilities must reserve a specified amount of storage capacity for their core customers. Since 1993, utilities have not been responsible for ensuring that noncore customers have reserved adequate storage capacity to meet their natural gas requirements. If noncore customers want storage services they must contract directly with a storage provider.

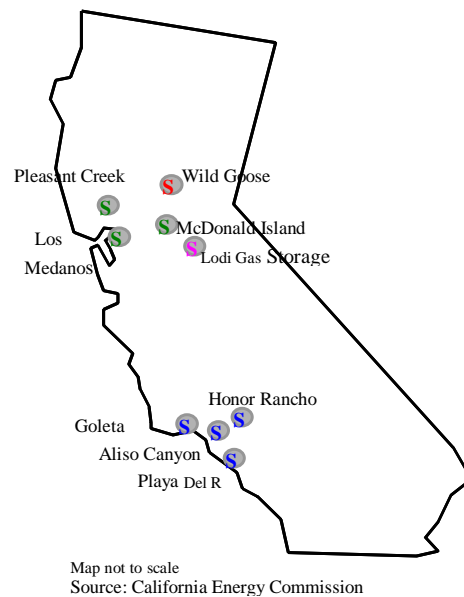
### UTILITY STORAGE FIELDS

PG&E's storage fields include the Pleasant Creek, McDonald Island, and Los Medanos storage facilities in Northern California. SoCalGas owns Honor Rancho, Goleta, Aliso Canyon, and Playa Del Rey storage facilities in Southern California. SDG&E contracts with SoCalGas for 5,900 MMcf of inventory capacity, with 27.7 MMcfd of injection capacity and 222 MMcfd of withdrawal rights.

### INDEPENDENT STORAGE

Two independent storage operators, Wild Goose Storage Inc.<sup>29</sup> and Lodi Gas Storage, L.L.C.<sup>30</sup> provide service to noncore customers, shippers and marketers. Lodi Gas Field is scheduled to be fully operational in December 2001.

**Figure 1-6: California's Natural Gas Storage Facilities**



<sup>29</sup> Wild Goose Storage Inc. is a wholly owned subsidiary of Alberta Energy Company Ltd., Canada's largest natural gas producer.

<sup>30</sup> Lodi Gas Storage, based in Houston, is a subsidiary of Western Hub Properties, which formed Haddington Ventures in 1998 to develop natural gas facilities.

**Table 1-5: Natural Gas Storage Capacity in California**

Storage Facilities	Inventory Capacity (MMcf)		Injection Capability (MMcfd)		Withdrawal Capacity (MMcfd)	
	Core	Total	Core	Total	Core	Total
PG&E	32,800	40,500	200	230	1,006*	1,341
SoCalGas	70,000	105,600	327	803	1,985**	3,740
Wild Goose		14,000		80		200
Lodi		12,000		400		500
TOTAL	102,800	172,100	527	1,513	2,991	5,781

\*PG&E's core withdrawal capacity can meet about 31% of core Abnormal Peak Day (APD)<sup>31</sup> demand.

\*\*SoCalGas' core withdrawal capacity can meet about 63% of core Extreme Peak Day (EPD)<sup>32</sup> demand.

## **H. CPUC HAS IDENTIFIED WHERE INFRASTRUCTURE IMPROVEMENTS ARE NEEDED, AND PROJECTS ARE PROGRESSING**

### **CPUC APPROVAL PROCESS FOR NEW NATURAL GAS FACILITIES**

The CPUC reviews proposed natural gas infrastructure improvements, and determines how customers will pay for any utility additions. In formal proceedings, proposals for utility infrastructure additions are examined to ensure that they are in the public interest. If the CPUC finds the proposal to be beneficial, it then scrutinizes the costs for the addition, and sets appropriate rates for the utility to recover those costs

If all utility customers benefit from the new capacity, the costs may be "rolled in" to the utility's rate base, and paid for equally by all customer classes. If the rate base addition benefits a small group of customers, or marketers, the incremental costs of the new facilities may be charged exclusively to those using the new capacity. The CPUC may also find that the utility should be put at risk for recovery of the costs of an addition.

<sup>31</sup> On PG&E's system, an abnormal peak day is defined as a system-weighted mean temperature of 29° Fahrenheit, which has a probability of occurring once in 90 years.

<sup>32</sup> On SoCalGas' system, an extreme peak day is defined as a day when the average system-wide temperature is 38° Fahrenheit. This has a probability of occurring once in 35 years.

In proceedings called Biennial Cost Allocation Proceedings (BCAPs), the CPUC allocates the utility's authorized revenue requirement, and designs rates for the various classes of customers, i.e. residential, commercial and industrial customers. In a BCAP, the utility typically presents its "Resource Plan," which shows the utility's planned transmission and storage additions for a fifteen-year period.

### **CRITERIA FOR AUTHORIZING NEW CAPACITY**

The CPUC has adopted broad, general criteria for new pipeline capacity. Following the curtailments in the late 1980s, the CPUC concluded that "slack capacity" of 10% in the near-term and up to 20% in the long-term (based on cold-year throughput forecasts) would "support the unbundled gas service structure, foster competition (gas-on-gas and pipeline-to-pipeline), and achieve a higher level of reliability of gas service in California."<sup>33</sup> These criteria required new pipelines to be "economically justifiable," and to promote "supply diversity." The CPUC did not endorse the construction of any specific interstate pipeline, and instead left it up to the market to decide which pipelines the market would support.

#### **CPUC Uses Resource-Planning to Ensure Quality Service by Gas Utilities**

##### **Utility Resource Plans Must:**

- Reflect an appropriately-planned system that meets customers' needs at the lowest total cost,
- Use at least a 15-year planning horizon for gas transmission and storage and at least a 10-year planning horizon for local transmission,
- Use short-term and long-term forecasts that are thoroughly documented and that specify all economic, load research, and end-use assumptions,
- Have adequate underlying load data for each customer class,
- Contain utility electric generation load forecasts that reflect the effects of weather and electric generating unit outages, and
- Contain explicit system design reliability objectives for both core and noncore customers.

### CPUC Policy Objectives for Gas Storage Facilities

- Ensure that adequate, reasonably priced, stable, and reliable gas supplies are available to core customers,
- Achieve and maintain access to diverse gas sources so that all gas customers in California can obtain adequate, reliable, reasonably priced gas supplies,
- Reduce the likelihood of peak period curtailments in a cost-effective manner,
- Avoid the negative consequences of uneconomic bypass, and
- Fairly allocate the costs of existing storage facilities among customer classes.

### UTILITY TRANSMISSION SYSTEM EXPANSIONS ALREADY UNDERWAY

**PG&E** is increasing its capacity by 6% with a 200 MMcfd expansion of the Redwood Path (expected to be completed by November 1, 2002).

**SoCalGas** is adding 375 MMcfd in four separate expansions to its transmission capacity. These expansions are expected to be in service in the first quarter of 2002.<sup>34</sup>

**SDG&E** has proposed a pipeline from Poway to Santee to add about 20 MMcfd to SDG&E's system capacity.

### STORAGE EXPANSIONS PROVIDE ADDITIONAL RESERVE CAPACITY

#### SoCALGAS

SoCalGas plans to increase the capacity of the Aliso Canyon and Goleta storage fields by 14 Billion cubic feet (Bcf) by Spring 2002. The average maximum injection capacity at these fields will increase by about 7% to 8% as a result of these expansions. The cost of this project is estimated at \$16 million.

<sup>33</sup> See D.90-02-016.

<sup>34</sup> These expansions include: the Kramer Junction expansion of 200 MMcfd, Wheeler Ridge expansion of 85 MMcfd, North Needles expansion of 50 MMcfd, and Line 85 (California production) of 40 MMcfd.

SoCalGas closed the Montebello storage facility earlier this year. The total recoverable gas in this facility is 23 Bcf. SoCalGas will withdraw 14 Bcf in 2001-2002. This withdrawal will continue for the next five years for the remainder of the cushion gas. Although not an addition to infrastructure, this one-time event will add about 50 MMcfd to SoCalGas' available supplies over the next year, and smaller amounts in subsequent years. SoCalGas delivered 2.7 Bcf to core customers in 2001 and will market the balance to noncore customers and marketers.

Planned Storage Expansions	
•	SoCalGas will expand the Aliso and Golieta storage fields to add 14,000 MMcf of inventory capacity by Spring 2002.
•	Wild Goose Storage plans to provide 15,000 MMcf of inventory capacity by 2003.
•	Lodi Storage will provide 12,000 MMcf of inventory capacity by December 2001.
•	PG&E is considering expanding the McDonald Island storage field.

#### PG&E

PG&E is considering an expansion of its McDonald Island storage field. This expansion would require the installation of new pipeline from the storage field to PG&E's transmission system.

#### WILD GOOSE STORAGE EXPANSION

Wild Goose plans to increase the storage capacity of its facility from 14 to 29 Bcf, with maximum injection from 80 to 450 MMcfd, and maximum withdrawal from 200 to 700 MMcfd by 2003.

#### NEW INTERSTATE PIPELINES WILL FURTHER ENHANCE NATURAL GAS DELIVERY TO CALIFORNIA

##### SOME NEW INTERSTATE PIPELINE PROJECTS HAVE BROKEN GROUND.

Eight interstate pipeline projects, representing more than 1,900 MMcfd of additional capacity to serve the California natural gas market, are underway. Table 1-6 shows the interstate pipeline projects that are anticipated.

**Table 1-6: Proposed Interstate Pipeline Additions**  
**(Approved by FERC or Contract Signed)**

<i>Name</i>	<i>Location</i>	<i>Capacity (MMcfd)</i>	<i>On-line Date</i>	<i>Status</i>
1. Transwestern- Red Rock, <i>Southwest</i>	San Juan & Permian Basins to CA/AZ border at North Needles and Topock	150	June 2002	FERC approved July 2001.
2. Questar Southern Trail East Zone, <i>Southwest</i>	San Juan Basin to CA/AZ border at North Needles	80	June 2002	FERC approved. Contracts signed.
3. El Paso Plains- All American Pipeline, <i>Southwest</i>	Conversion of oil pipeline to gas, San Juan & Permian Basins to CA/AZ border at Blythe	230	Mar 2002	FERC conditionally approved May 2001.
4. Kern River Gas Transmission, <i>Rocky Mountains</i>	Opal, WY to Wheeler Ridge, other CA delivery points (e.g., Kramer Junction & Daggett), Nevada, and Utah	146	May 2002	FERC approved. Contracts signed.
5. PG&E GTN, <i>Canada</i>	Kingsgate to CA/OR border at Malin, 21 miles of loop.	169	July 2002	FERC approved. Contract signed.
6. Otay Mesa Generating Company Pipeline, <i>Mexico</i>	From North Baja pipeline to Otay Mesa Power Plant in San Diego County, CA	110	Sep 2002	FERC granted Presidential permit July 2001.
<b>Total 2002<sup>35</sup> Additions</b>		<b>885</b>		
7. Kern River Gas Transmission, <i>Rocky Mountains</i>	Opal, WY to Wheeler Ridge, other CA delivery points (e.g., Kramer Junction & Daggett), Nevada, and Utah	885	May 2003	FERC application filed Aug 2001. Contracts signed
8. PG&E GTN, <i>Canada</i>	Kingsgate to CA/OR border at Malin	80	Nov 2003	FERC application Nov 2001. Contract signed.
<b>Total 2003 Additions</b>		<b>965</b>		
<b>Total Expansions<sup>36</sup></b>		<b>1,850</b>		

<sup>35</sup> The Kern River High Desert in-state expansion from Kramer Junction to Victorville for 282 MMcfd is not included in the table. This expansion planned for 2002 does not add capacity to California.

<sup>36</sup> In addition to the above expansions, the North Baja expansion of 500 MMcfd is expected to come online in July 2002. This project will not add interstate pipeline capacity to California, but it could potentially serve the proposed Blythe power plant and provide deliveries to the SDG&E service territory.

**SOME PIPELINES ARE A LONG WAY FROM GETTING STARTED.**

There are a number of pipelines that are currently only in the preliminary planning stages. These proposed additions still have to go through FERC approval, receive the necessary environmental permits, find customers willing to contract for the new capacity, and get financing from private firms contracting for the new capacity. These projects are shown in Table 1-7.

**Table 1-7: Expansion Proposals That Are In The Early Stages**

Name	Location	Capacity MMcfd	On-line Date	Status
1. Transwestern-Sun Devil, <i>Southwest</i>	San Juan Basin to CA/AZ border at North Needles	TBD	TBD	FERC application expected mid-2002. Negotiating contracts.
2. El Paso Southern System Expansion, <i>Southwest</i>	Permian Basin to CA/AZ border at Blythe	320	TBD	Not fully committed in open season. Evaluating options.
3. Kinder Morgan-Sonoran Pipeline Phase 1, <i>Southwest</i>	New Mexico to North Needles	750	Summer 2004	FERC application Spring 2002. Negotiating contracts.
4. Ruby Pipeline, <i>Rocky Mountains</i>	New pipeline from Southwestern WY to Sacramento, Stockton, and Antioch	750	Dec 2004	FERC application in mid 2002. Negotiating contracts.
5. Questar Southern Trail West Zone, <i>In-State</i>	North Needles to Long Beach	TBD	TBD	FERC approved.
6. El Paso Bi-directional Lateral, <i>In-State</i>	Blythe to Daggett	TBD	TBD	Not fully committed in open season. Evaluating options.
7. Kinder Morgan-Sonoran Pipeline Phase II, <i>In-State</i>	North Needles to Bay Area	1,000	TBD	FERC application Spring 2002. Negotiating contracts.
8. Mojave Sacramento Valley, <i>In-State</i>	Topock to Sacramento Valley	TBD	TBD	Project on hold.



**LIQUEFIED NATURAL GAS PROPOSALS ARE A DISTANT POSSIBILITY,  
AND MAY NOT YIELD ANY BENEFITS DURING THE NEXT FIVE YEARS**

There are several private firms that are exploring the feasibility of transporting liquefied natural gas. These proposals are only in conceptual stages.

Sempra Energy, in partnership with CMS Energy Corporation, is considering building LNG facilities in Baja Mexico. With a tentative in-service date of 2005, the project could supply 1,000 MMcfd at an estimated capital cost of \$500 million.<sup>37</sup>

B.B. InterCapital<sup>38</sup> submitted a proposal to the Power Authority to build a 1,400 MMcfd LNG facility in Baja California to import natural gas from Bolivia. B.B. InterCapital is asking the Power Authority to finance the entire projected capital costs of about \$5.75 billion through the issuance of bonds.

El Paso Corporation and Bechtel Enterprises are also considering building LNG facilities in Mexico or in California.

---

<sup>37</sup> Los Angeles Times, October 5, 2001, "Sempra Plans Major Energy Project in Baja."

<sup>38</sup> B.B. InterCapital, formed in 1999, has offices in La Paz, Bolivia and Boston, Massachusetts.

## CHAPTER 2

### LEARNING FROM THE EVENTS OF 2000 – 2001

#### A. A COMBINATION OF UNUSUAL EVENTS LED TO EXTREMELY HIGH NATURAL GAS PRICES AND SUPPLY SHORTAGES IN 2000-2001

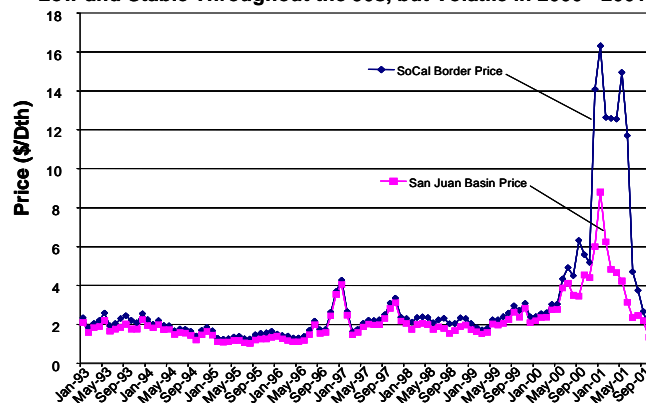
The skyrocketing prices experienced in California in 2000 and 2001 caught consumers and natural gas experts by surprise. Over the last decade, California's customers had enjoyed relatively stable gas prices from year to year, with sufficient capacity to meet their needs.

In 2000 and 2001, a combination of factors drove prices through the roof and threatened the reliability of the gas infrastructure.

#### Why Were California's Gas Prices So High in 2000 – 2001?

- Anticompetitive actions by El Paso, the owner of an interstate pipeline, drove up gas prices at the California border. At their peak, prices were as much as thirty times higher than normal.
- Low rainfall limited the supply of hydroelectric generation so gas-fired electric generation had to be used in its place. The extra use of gas-fired electric generating plants pushed up demand.
- California's largest natural gas users did not have sufficient gas in storage.
- Gas prices were higher across the country in 2000.

**Figure 2-1: Basin and Southern California Border Prices – Low and Stable Throughout the 90s, but Volatile in 2000 - 2001**



#### THE ROLE OF THE EL PASO CONTRACT

Historically, the price of natural gas sold at the southern California border closely tracked the San Juan Basin price. That all changed following El Paso Merchant Energy's acquisition of 1,220 MMcfd of El Paso pipeline capacity in March 2000. As shown in Figure 2-1, the price at the California border began to reflect a huge mark-up from the San Juan Basin price by the summer of 2000. The daily spot price of gas at the southern California border reached as high as \$60 per decatherm<sup>39</sup> (Dth) in early December 2000, compared to the \$8 to \$11 per Dth price in the San Juan Basin.

The CPUC was concerned that the El Paso contract would hurt California consumers and only a month after the contract was awarded, the CPUC filed a complaint at the FERC. In the April 4, 2000 complaint, the CPUC argued that the fifteen-month contract between El Paso (the owner of the pipeline) and El Paso Merchant Energy (an affiliate of El Paso) had the potential for market power and affiliate abuse. In the October 9, 2001 Initial Decision on the CPUC v. El Paso complaint, the FERC Administrative Law Judge (ALJ) agreed that El Paso violated the FERC affiliate abuse regulations and that El Paso and El Paso Merchant had the ability to exercise market power. However, the ALJ found that there was not clear evidence that they exercised market power, and the CPUC has appealed this finding to the FERC. The CPUC is continuing efforts to have El Paso pay refunds to California consumers associated with its unjust and unreasonable actions. In the meantime, the California Assembly Subcommittee on Energy Oversight also found that "The [El Paso] contract provided [El Paso Merchant Energy] market power that could be exploited to artificially increase prices."<sup>40</sup>

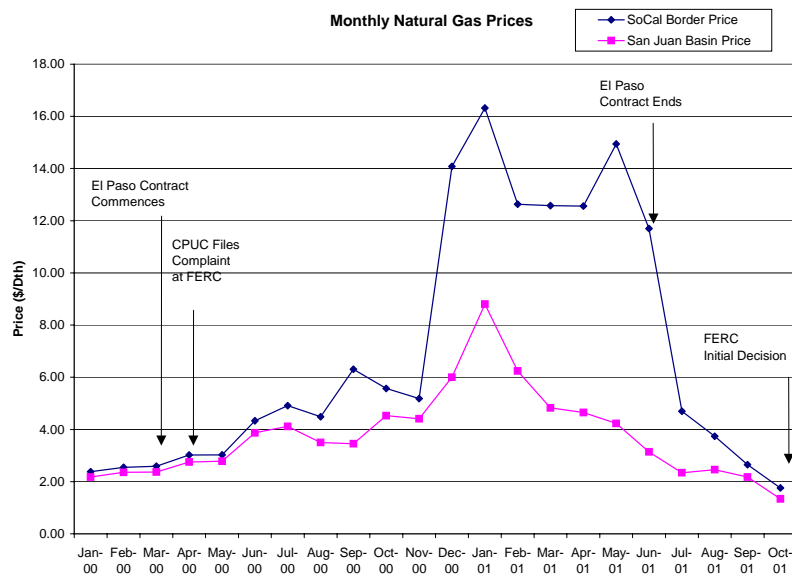
The fluctuations in natural gas spot prices at the California border through 2000-2001 make it clear that the market power the CPUC was concerned about was indeed responsible for the soaring prices. Shortly after the El Paso Merchant contract expired on May 31, 2001, California border prices once again corresponded to San Juan Basin prices. Figure 2-2 illustrates 1) the dramatic increase in the differential between the California border price and the San Juan basin price following the commencement of the El Paso contract, and 2) the decrease in the differential after the El Paso contract ended.

---

<sup>39</sup> A "Dth" stands for a "decatherm" or ten therms of gas. A Dth is equivalent to a million BTUs of gas energy. One thousand Dth, or an MDth, is roughly the energy content of a million cubic feet (MMcf) of gas volume.

The increase in California border prices caused by the anti-competitive El Paso contract likely was exacerbated by concurrent developments in the gas market. Gas demand for electric generation escalated from the summer of 2000 through the spring of 2001. In August 2001, an explosion on the El Paso Pipeline temporarily reduced capacity on that pipeline for a couple of weeks. Adding to the stress on the pipeline delivery system, noncore customers, including electric generators, did not inject enough natural gas into storage during the spring to fall of 2000. Consequently, these customers met their higher demand by making incremental gas purchases, rather than drawing on storage.

**Figure 2-2: California Border Prices Increase in 2000-2001  
Because of El Paso Contract**



<sup>40</sup> "California Natural Gas Market: Interstate Pipeline Dominance, Exorbitant Prices, and Federal Regulatory Actions", California Assembly Subcommittee on Energy Oversight, May 2001, pg. 15.

### **INCREASED DEMAND FROM GAS-FIRED ELECTRIC GENERATING PLANTS HELPED PUSH GAS PRICES HIGHER IN 2000**

California's natural gas infrastructure was able to absorb the growth in demand from 1996 to 2000, but incremental demand of gas-fired electrical generation stressed the system in 2000-2001. California's demand for natural gas grew a substantial 22% from 1996 to 2000, from 5,343 MMcfd in 1996 to 6,536 MMcfd in 2000, or about 5% per year.<sup>41</sup> California's natural gas transmission infrastructure readily accommodated the increased deliveries due to the over-building of the interstate and backbone transmission system in the early 1990s.

Low precipitation in 2000 and 2001 in California and the Pacific Northwest limited the amount of hydroelectric generation available to California. When California's restructured electricity market began to collapse in May 2000, gas demand from gas-fired power plants soared. In the first five months of 2001, PG&E and SoCalGas' deliveries jumped nearly 20% over the previous year (almost 1,000 MMcfd). SDG&E was forced to curtail some noncore natural gas customers in the winter of 2000-2001, because of unusually high electric generation demand.

Following the stabilization of California's electricity market and the recent addition of new gas infrastructure to ease system bottlenecks, the pressure on California's gas transmission system diminished. The reduction in demand for gas by gas-fired electric generators led to an 11% reduction in gas demand on the SoCalGas system for the months of June through September in 2001.

### **LARGE NONCORE CONSUMERS DID NOT MAKE GOOD USE OF STORAGE**

Utilities are not responsible for ensuring that noncore customers have reserved adequate storage capacity to meet their natural gas requirements. Noncore customers did not inject as much gas into storage as they could have in 2000, particularly on the SoCalGas system, as shown in Figure 2-3. Later in the year, as electric generation demand rose, these customers could not rely on stored gas to meet their increased demand. Instead, the electric generators increased natural gas pipeline deliveries to

---

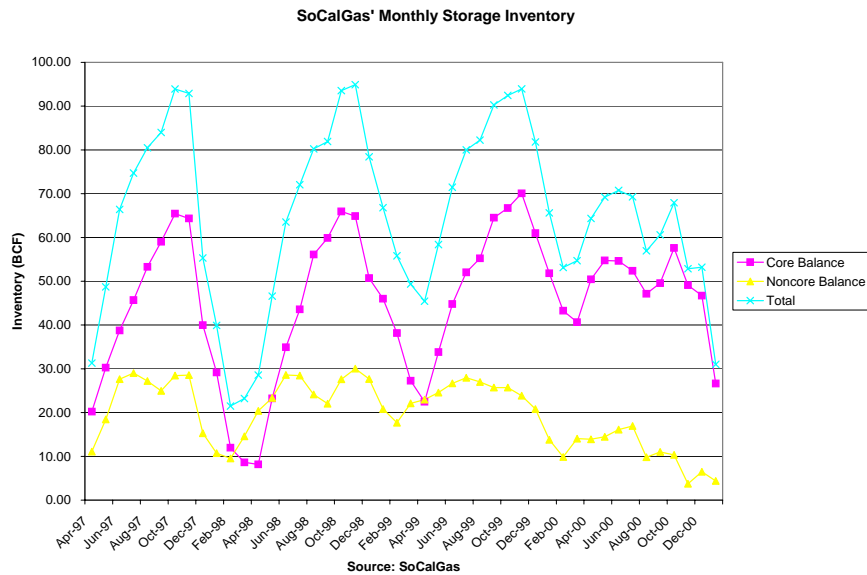
<sup>41</sup> California Gas Report, 2001.

California, causing usage of the utility backbone natural gas transmission systems to significantly increase.

Nonetheless, the storage reserves maintained by PG&E and SoCalGas provided overall system reliability, and enabled them to meet all customer demand (noncore, as well as core) in 2000 and 2001.

In response to concerns that noncore customers were not injecting adequate supplies of natural gas into storage, the CPUC initiated a proceeding, Order Instituting Rulemaking 01-03-023, to consider whether it should revise storage rules for noncore customers.<sup>42</sup>

**Figure 2-3: SoCalGas Storage Levels Show Noncore Storage Below Normal in 2000**



<sup>42</sup> A proposed decision has been issued in R.01-03-023.

# **NATURAL GAS PRICES TRIPLED ACROSS NORTH AMERICA IN 2000**

Through the 1990s, the basin price of natural gas was relatively low and stable, fluctuating between about \$1.50/Dth and \$3.50/Dth (about \$1.50 to \$3.50/Mcf). The San Juan Basin price shown in Figure 2-1 exemplifies the overall trend. Canadian gas prices followed a similar pattern, but generally undercut Southwest gas prices. In late spring 2000, natural gas prices began to climb across North America, more than tripling by the end of the year, both at the wellhead and at various price points where gas is delivered by the interstate pipelines.

In contrast to the price increase at the California border, the run up in the basin price of natural gas in North America in 2000 is a classic example of basic supply and demand. A decade of low prices gave gas producers little incentive to invest in new production. Economic growth in the late 1990's, coupled with low levels of gas in storage in 2000, contributed to the imbalance between supply and demand.

## **B. THE DRAMATIC INCREASE IN THE CALIFORNIA BORDER PRICE WAS NOT CAUSED BY INADEQUATE NATURAL GAS INFRASTRUCTURE IN CALIFORNIA <sup>43</sup>**

California's gas infrastructure is able to meet the needs of California's customers, and was not responsible for the high prices experienced in 2000 – 2001.

PG&E's intrastate pipeline connected to the southern California border was not running at full capacity. PG&E's Line 300, the Baja Path, taking delivery from

### **California's Gas Infrastructure is Not to Blame for the Problems in 2000 – 2001**

- There was extra capacity available along PG&E's high-volume transmission system.
- SoCalGas had over 30 billion cubic feet of storage capacity available to noncore customers. Noncore customers only used half of it.
- California border prices moderated in 2001 even though SoCalGas continued to operate at high load.

<sup>43</sup> The Utility Reform Network's August 21, 2001 comments on the CEC's draft "Natural Gas Infrastructure Report" also express disagreement with the view that the price increases during the winter of 2000-2001 were primarily due to inadequate gas infrastructure.

El Paso at Topock, had excess capacity when the price increases occurred. The Baja Path rarely runs at full capacity.

SoCalGas' storage, capable of storing over 100 Bcf of gas and withdrawing over 3 Bcf of gas per day, had over 30 Bcf of storage capacity available for noncore customers. On June 1, 2000, noncore customers held only 14 Bcf of gas in storage. By November 1, 2000, noncore storage had dropped to 10 Bcf. This compares to 25 Bcf and 26 Bcf, respectively, for 1999. If noncore customers had injected more gas into storage (fully utilizing the available infrastructure), then it would not have been necessary to use intrastate pipelines at such high levels later in 2000-2001.

SoCalGas' transmission capacity continued to operate at high load levels throughout the summer of 2001 (i.e. right after the El Paso contract ended), as core and noncore customers injected gas into storage. Nonetheless, the California border price dropped from \$10.20/Dth on May 31, 2001 (the day the El Paso contract expired) to \$2.57/Dth on August 31, 2001. This indicates that, rather than an "infrastructure shortage" driving up border prices, the anti-competitive El Paso Merchant Energy contract caused the price escalation at the California border.

### **C. POSITIVE OUTLOOK FOR NATURAL GAS SYSTEM AS WE GO INTO WINTER 2001 - 2002**

Demand dropped off later in the summer and fall of 2001 as California's natural gas demand has been lower than was expected earlier this year. The storage fields of both PG&E and SoCalGas are at full capacity as they head into the winter heating season. Core storage is higher than the winter of 2000-2001, and reached its November 1<sup>st</sup> storage target of 70 Bcf. Noncore customers injected much more natural gas into storage this year. As of November 15, 2001, total SoCalGas storage inventory is nearly 114 Bcf, its highest level in at least the last five years.



## CHAPTER 3

### California's Gas Infrastructure Forecast

For 2002 - 2006

**Forecasts for the transmission and distribution systems of each utility:**

- PG&E forecast: minimum of 15% extra capacity on transmission system
- SoCalGas forecast: minimum of almost 28% extra capacity on transmission system
- SDG&E forecast: average of 50% extra capacity on transmission system

**Storage capacity sufficient.**

- New expansions underway.

**California's transmission and storage infrastructure will meet forecast demand.**

- System-wide curtailments of large noncore customers are unlikely on PG&E's system.
- Localized constraints are possible on cold winter days on all three utilities' local gas transmission systems.
- The CPUC expects demand to decrease in the next few years before resuming normal growth patterns.

**Demand from gas-fired electric generating plants should decline.**

- In-state demand from gas-fired generation will decline as newer, more efficient plants come online.
- Large gas-fired plants are likely to be located along interstate pipelines within and outside California's borders.

**Weather drives gas demand.**

- Temperatures and precipitation affect the amount of gas needed.

**Levels of conservation and economic factors were considered in forecasts.**

- Conservation and a slowing economy may reduce gas demand.

## STATE AND UTILITY FORECASTS FOR 2002 TO 2006

**A. CALIFORNIA’S NATURAL GAS INFRASTRUCTURE CAN MEET  
FORECAST DEMAND UNDER ADVERSE WEATHER CONDITIONS**

California’s natural gas transmission system for all three utilities will operate at less than 80% of total system capacity over the next five years under average temperatures and normal winter precipitation.<sup>44</sup> Even under the adverse weather conditions of a cold winter and low hydroelectric availability, the average slack capacity would be at least 15%.

**Weather Conditions That Affect Gas Demand Forecasts**

**Temperature**

- Cold temperatures increase demand as Californians use more natural gas for heating.
- Temperatures in the summer increase the demand for electricity, increasing the demand for natural gas from gas-fired electric generating plants.

**Precipitation**

- Low rainfall limits the supply of hydroelectric generation so gas-fired electric generation has to be used in its place.

**Weather Scenarios Examined**

**Dry Hydro**

- Conditions where extremely low rainfall limits the supply of hydroelectric generation available. This report defines dry hydro as having a 5% probability of occurring, i.e. once in 20 years.

**Hot or Cold Temperatures**

- The “hot” or “cold” temperature scenarios similarly reflect temperature conditions with a low probability of occurring. PG&E’s hot and cold year forecasts assume equivalent temperatures to the warmest or coldest annual temperatures observed during the last 40 years. For SoCalGas, the cold-year forecast has a probability of occurring once every 35 years.

In dry years, reduced hydroelectric production in the Western states leads to increased gas-fired electric generation to meet electric demand. Colder than normal winter weather drives up natural gas demand for home heating. Hot summer weather increases electricity demand for air conditioning, and in turn natural gas used by electric generators.

<sup>44</sup> An “average temperature year” is based on long-term, average recorded temperatures, or “heating degree days.” A “dry hydro” condition in this report is defined as a low level of hydroelectric generation that is experienced only once every 20 years in the Western Systems Coordinating Council (WSCC).

The CPUC analyzed recorded demand figures over the past five years along with demand forecasts through 2006 under a variety of weather conditions. This analysis examined the ability of the gas infrastructure to meet demand under a range of temperatures in combinations with assumptions of high- and low-precipitation. These scenarios capture a very broad range of conditions.

The National Weather Service's latest precipitation forecast indicates that there is an equal probability of above average, normal, and below average precipitation through the winter of 2002-2003. It also shows there is an equal probability of warm, average, or cold temperatures over the same period.

**UTILITIES' GAS INFRASTRUCTURE IS DESIGNED TO PROVIDE RELIABLE SERVICE TO CORE CUSTOMERS EVEN UNDER EXTREME STRESS.**

The utilities design their natural gas systems to provide reliable service to residential and small commercial customers even under extreme weather conditions. SoCalGas' storage can be used to avoid system-wide curtailments for noncore customers, as well as core customers, even under extreme peak day conditions. PG&E's current natural gas backbone transmission and storage system cannot assure service to all noncore customers on very cold days. These very cold days have a probability of occurrence of between once in twenty years and once in ninety years. With the use of Wild Goose storage and Lodi storage, and the expansion of Redwood Path capacity, the likelihood of curtailments on PG&E's system even under these conditions will be reduced.

Under less extreme conditions, localized constraints may develop on the utilities' local natural gas transmission systems during periods of very cold weather. Such local constraints would not affect customers on a system-wide basis. Rather, the constraint would affect the relatively small number of noncore customers located in that particular area for, at most, a few days (see Table 3-1).

**Table 3-1: Potential Constraints on Utility Systems**  
**Constraints Expected Only Under Adverse Conditions and**  
**Likely to Be Limited in Scope**

<i>Potential Constraint</i>	<i>PG&amp;E</i>	<i>SoCalGas</i>	<i>SDG&amp;E</i>
Backbone Transmission & Storage System	Very Cold Days, once every twenty to ninety years	No constraints up to conditions expected once every 35 years	Not applicable
Local Transmission System	Cold Days, once every four years	San Joaquin Valley, Imperial Valley, once every ten years	Very Cold Days, once every 20 to 35 years*

\* After 2002, assumes North Baja Pipeline constructed

**CALIFORNIA'S LARGEST CUSTOMERS HAVE CHOSEN LOWER RATES IN EXCHANGE FOR SLIGHTLY LESS RELIABLE SERVICE.**

The utilities' systems are currently designed to ensure service to core customers, even under extreme weather conditions. Although the utilities design their systems to provide highly reliable service for large noncore customers, California's largest gas consumers have low rates partly in exchange for the very infrequent chance of a short curtailment. Capacity in areas subject to potential local constraints during the forecast period could be expanded, depending on system design criteria, the level of service required by noncore customers, and customers' willingness to pay for higher levels of reliability. The CPUC is addressing these issues in our current investigation into SDG&E's and SoCalGas' natural gas transmission system, and will continue to evaluate these issues in upcoming utility rate-setting proceedings.

# **B. DEMAND FROM GAS-FIRED ELECTRIC GENERATING PLANTS SHOULD DECLINE**

Gas-fired power plants used about 44% of all gas consumed in California in 2000. A substantial number of new efficient gas-fired power plants will be coming online in the next few years, displacing the power produced from the state's portfolio of 30- to 40-year old gas-fired steam plants and old peaking units.<sup>45</sup> A return to normal levels of hydroelectric capacity would also contribute to a decrease in gas demand relative to recent natural gas demand. Gas demand by electric generators within the state may be further diminished if new power plants under construction in neighboring states sell some of their power into California.<sup>46</sup>

**How Building New Gas-Fired Electric Generation Plants Could Reduce Gas Demand**

- Most gas-fired power plants currently in use in California are old and much less efficient than new power plants that are under construction in California and the Western States.
- New gas-fired power plants use approximately 30% less gas per megawatt generated, and therefore will most likely force the older plants to shut down.
- Many of the newer plants are located outside of California, yet are expected to provide at least a portion of their generation to California, reducing the need for gas-fired plants within the State to operate.
- Some of the new gas-fired plants will be located in California but will take service directly from interstate pipelines, reducing demand on the utility systems.

On average, the new gas-fired power plants are over 30% more efficient than existing plants.<sup>47</sup> Figure 3-1 shows the comparative fuel efficiency advantage of the new gas-fired plants. In Southern California, the heat rate of every major power plant now served by SoCalGas exceeds the typical heat rate of a new power plant.<sup>48</sup>

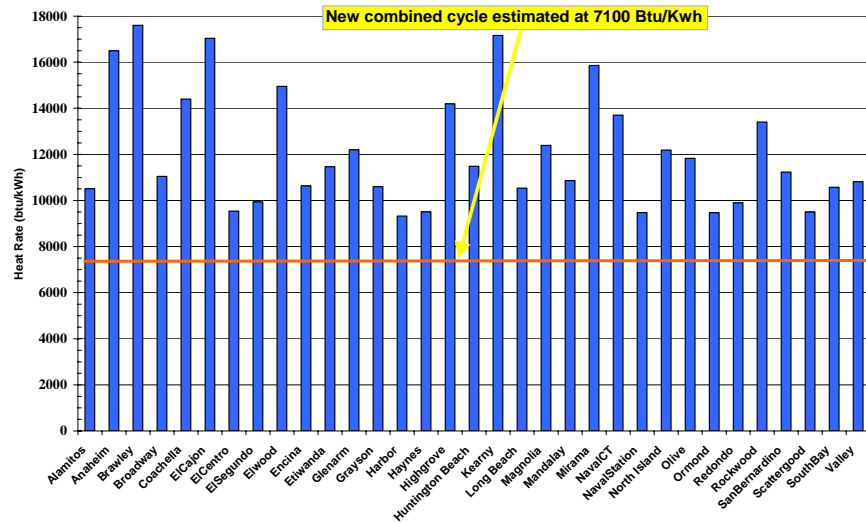
<sup>45</sup> The displacement of electricity produced by older generation units may not be a perfectly efficient process, given that the ISO does not dispatch power plants based on efficiency, and given that the Department of Water Resources has power contracts with specific plants. Nevertheless, this displacement is expected to result in a significant reduction in gas demand. In Chapter 4, the CPUC recommends that there should be improved coordination between electric and gas operations in the state to improve the efficiency of both operations.

<sup>46</sup> For example, see the California Energy Commission's "Natural Gas Infrastructure Issues," September 2001 and Southern California Gas Company's Application 01-09-024, September 2001.

<sup>47</sup> Southern California Gas Company, Application 01-09-024, Attachment I, pg. 11, September 2001.

<sup>48</sup> The "heat rate" of a gas-fired power plant is the amount of natural gas energy needed to generate a given amount of electricity. Thus, power plants with lower heat rates are more efficient than plants with higher heat rates.

**Figure 3-1: Heat Rates of SoCalGas-Served Power Plants Show that California Gas Demand Will Likely Decrease as New Plants Come On-Line**



Source: Southern California Gas Company, September 2001.

The location of new gas-fired generation will have an affect on where natural gas is consumed. Most of the proposed gas-fired plants are expected to be located along interstate pipelines, which may increase the amount of gas available within the state. The map below (Figure 3-2) shows approximately 10,000 MW of new generating capacity proposed along the path of the Kern River pipeline, which is currently expanding its system by 885 MMcf/d. Most of the new proposed plants along the Kern River pipeline could be served by the proposed Kern River expansion with no significant diversion of capacity currently serving California. Kern River could serve power plants located out-of-state or within California, but off the utilities' systems.

Figure 3-2

### Location of New Gas-Fired Power Plants Along Interstate Pipelines

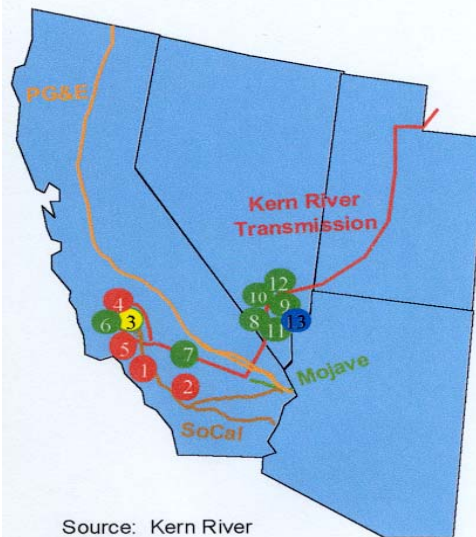
The map to the right shows the location of new gas fired power plants.

#### Plants located within California

1. Pastoria – Enron (750 MW)
2. High Desert – Constellation (720 MW)
3. La Paloma – PG&E (1050 MW)
4. Elk Hills – Oxy/Sempra (500 MW)
5. Sunrise – Mission Energy (320 MW)
6. Midway Sunset – Midway Cogen (500 MW)
7. Antelope Valley – Enron (1000 MW)

#### Plants located on the Kern River Interstate Pipeline

8. Apex – Mirant (1150 MW)
9. Moapa – Duke (1200 MW)
10. Meadow Valley – PG&E (1000 MW)
11. Arrow Canyon – Reliant (500 MW)
12. Crystal – Calpine (760 MW)
13. El Dorado – Reliant/Sempra (480 MW)

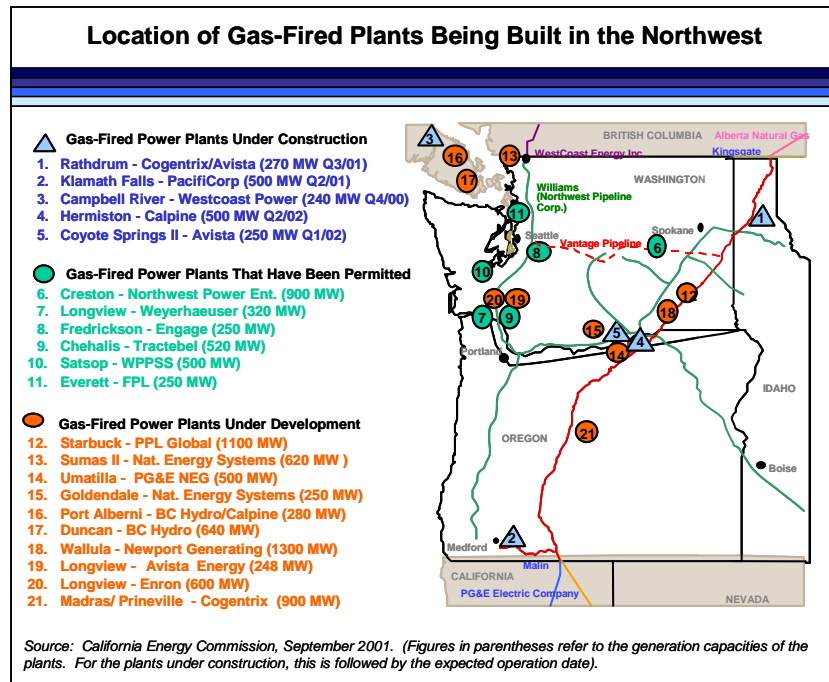


Source: Kern River

Source: California Energy Commission, September 2001 (Figures in parentheses show total plant capacity)

The map below (Figure 3-3) shows a similar pattern in the Northwest, with many of the proposed power plants located along the path of the PG&E -GTN pipeline.<sup>49</sup>

Figure 3-3



The CPUC is concerned that the extensive construction of new gas-fired power plants located upstream from California on interstate pipelines could reduce the amount of gas that can reach California.<sup>50</sup> In addition, we have no guarantee that the power generated by new plants outside California will be sold in California. If power generated by new

<sup>49</sup> Proposals have been made for new interstate pipelines within Northern California, but these proposals remain speculative. Absent these pipelines, PG&E would serve new power plants built in Northern California.

<sup>50</sup> On July 13, 2001, the CPUC filed a joint complaint at the FERC against El Paso regarding this very issue. El Paso customers east of California have been receiving their full gas requirements, while California customers have not been receiving their contract demand amounts, even though California customers pay fixed reservation charges for the use of El Paso firm pipeline capacity.



plants outside California is sold elsewhere, gas-fired generation within California will be higher as will gas demand to serve those plants.

### **C. CONSERVATION AND ECONOMIC UNCERTAINTY AFFECT GAS DEMAND**

Conservation of both natural gas and electricity, consumer response to higher electric and gas rates, and economic conditions are other important variables affecting forecasts of electric generation and overall natural gas demand during the five year forecast period. As the Department of Energy's Energy Information Administration noted in a report on natural gas market trends, "Economic growth leads to growth in housing starts, commercial floor space, disposable income, and industrial output, all of which lead to growth in energy consumption."<sup>51</sup> On the other hand, a slowdown in economic growth leads to a relative decrease in gas demand. In a recent presentation, the Department of Energy noted that a key assumption behind its current natural gas outlook was that the economic slowdown nationally was limiting gas demand.<sup>52</sup>

SoCalGas stated in recent testimony filed in Application (A.) 01-09-024, that "(T) he load reduction programs implemented by the State of California coupled with high electric rates and an economic downturn have reduced the growth in electric end-use demand." Based on input from industry sources, SoCalGas estimated the electric demand reduction in 2001 for the California [regulated gas utilities] to be 9%. We calculate the actual average electric generation gas demand on SoCalGas' system from June 2001 through September 2001 to be almost 15% lower than during the same period in 2000.

---

<sup>51</sup> "U.S. Natural Gas Markets," EIA, May 2001.

<sup>52</sup> "An Assessment of Recent Natural Gas Market Trends," DOE, October 17, 2001.

**D. FORECASTS FOR 2002-2006 INDICATE THAT CALIFORNIA'S  
NATURAL GAS INFRASTRUCTURE WILL BE ADEQUATE DURING  
THE NEXT FIVE YEARS UNDER LIKELY WEATHER AND  
HYDROELECTRIC SCENARIOS**

**CPUC Forecasts That Gas Infrastructure In California  
Should Be Capable of Meeting Demand in 2002- 2006**

**Statewide Forecast**

- The combined utilities' natural gas infrastructure should be capable of meeting demand over the next five years.

**Forecast for PG&E**

- Transmission and storage system expected to be adequate to serve all core customers under adverse weather scenarios.
- One in four chance of noncore customer curtailment on PG&E's local transmission system on cold days.
- System-wide curtailments of noncore customers unlikely, but possible, on very cold days.

**Forecast for SoCalGas**

- Transmission and storage system expected to be capable of serving all customers, even under the most adverse scenarios.
- Potential constraints exist in two areas of SoCalGas' local transmission system, but curtailments are unlikely. Any curtailment that may occur would be only for some noncore customers for a few days at most.

**Forecast for SDG&E**

- Gas transmission capacity expected to be adequate. Constraints possible (but unlikely) on very cold days.

## STATEWIDE FORECAST

Even under highly unlikely weather conditions, California's utilities should have ample capacity to meet customer demand. Table 3-2 shows the slack capacity associated with gas demand forecasts under numerous weather scenarios, including the simultaneous occurrence of a dry hydro condition with a hot or cold temperature year.<sup>53</sup> These forecasts, under a wide variety of scenarios, indicate that California's pipeline and storage system will be sufficient to provide a high level of reliability through at least 2006.

**Table 3-2: Slack Capacity Under Different Weather Scenarios Shows Adequate Backbone Transmission Capacity through 2006**

<i>Scenarios</i>	<i>PG&amp;E</i>	<i>SoCalGas</i>	<i>SDG&amp;E</i>	<i>Statewide</i>
Average Temperature, Normal Hydro	29%	37%	49%	27%
Average Temperature, Dry Hydro	17%	31%	46%	20%
Cold Temperature, Normal Hydro	27%	33%	47%	25%
Cold Temperature, Dry Hydro	15%	28%	44%	17%
Hot Temperature, Normal Hydro	30%	38%	51%	28%
Hot Temperature, Dry Hydro	18%	33%	48%	19%

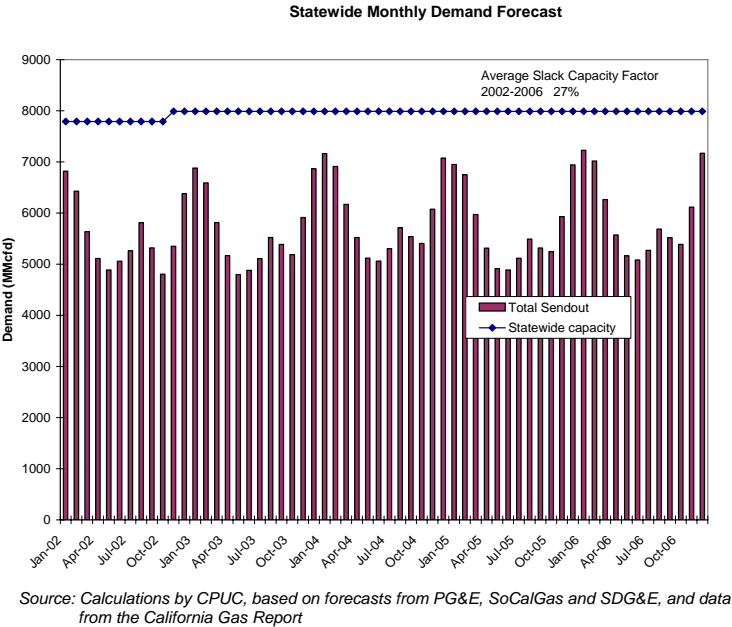
*Note: CPUC Calculations Based on Utility Forecasts of Natural Gas Demand, August-October 2001*

California's gas utilities do not serve all gas demand in California. Some of the gas deliveries in California bypass the utility systems, either via the Kern River/Mojave interstate pipeline system, or via direct delivery from California producers. Bypass deliveries over the 1996-2000 period have been steady at approximately 1,000 MMcfd. In 1999 and 2000, roughly half of bypass deliveries have been in-state producers, and the other half was transported off the Kern River and Mojave interstate pipelines.<sup>54</sup>

<sup>53</sup> "Slack capacity" is the amount of unused firm transmission capacity, typically on an annual basis divided by the amount of firm transmission capacity. The figures shown in Table 3-2 are the averages of the slack capacity figures for 2002-2006

CPUC estimates of statewide deliveries for 2002 – 2006 are based on the utilities' forecasts of gas demand, PG&E's forecast of bypass deliveries from the 2000 California Gas Report, and SoCalGas' updated forecasts of bypass deliveries. Figure 3-4 compares these estimates to statewide transmission capacity, under average temperatures and normal hydro conditions.<sup>55</sup> The CPUC did not adjust forecasts of bypass deliveries under different temperature scenarios, or to account for dry hydro conditions.

**Figure 3-4: Combined Utility and Bypass Demand Forecasts Show Adequate Statewide Natural Gas Transmission Capacity**



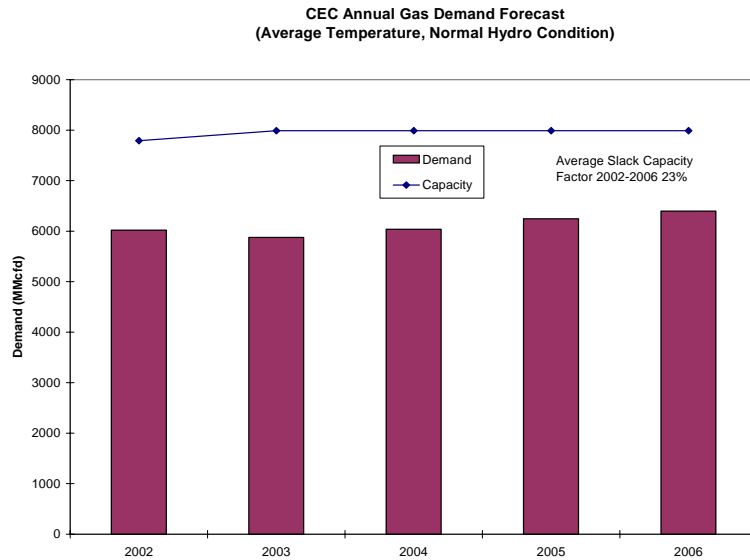
<sup>54</sup> SoCalGas submitted these figures subject to confidentiality restrictions.

<sup>55</sup> For this analysis, the CPUC calculates statewide delivery capacity to be 7,790 MMcf/d for January through October 2002, and 7,990 after 2002. In this report, we assume for the forecast period that California-produced bypass gas deliveries will continue at the same level as in 2000, i.e. 552 MMcf/d.

The planned expansions of intrastate natural gas transmission capacity (for example by Kern River<sup>56</sup>), the proposed expansion of Wild Goose storage capacity, and the operation of the Lodi storage field will further enhance the ability of the state's natural gas transmission and storage infrastructure to meet demand.

The CPUC notes that the statewide natural gas demand forecast prepared by the CEC<sup>57</sup> closely agrees with the combined statewide forecasts prepared by the regulated California utilities.<sup>58</sup> The CEC demand forecast, shown in Figure 3-5, indicates an average statewide slack capacity of 23%; the utility-based forecast indicates a slack capacity of 27%.

**Figure 3-5: CEC Forecast Shows California's Natural Gas Infrastructure Able to Meet Demand**



Source: CEC provided demand figures. Non-electric generation demand, June 2000, and electric generation demand, August 2001. CPUC staff derived the slack capacity factors.

<sup>56</sup> The proposed Kern River expansion is not included in the CPUC's calculation of statewide transmission capacity in Figures 3-4 and 3-5.

<sup>57</sup> This forecast also closely agrees with the gas demand forecast recently shown by the CEC in their report "California Energy Outlook: Electricity and Natural Gas Trends Report", dated September 7, 2001.

<sup>58</sup> CEC gas demand forecasts for the PG&E system are higher than the forecasts prepared by PG&E, but CEC forecasts for the SoCalGas system are about the same as the demand forecasts prepared by SoCalGas.

## PG&E's SYSTEM FORECAST

### PG&E's NATURAL GAS TRANSMISSION AND STORAGE SYSTEM

PG&E's average natural gas transmission slack capacity will be about 29% under normal conditions during the forecast period (See Table 3-2).<sup>59</sup> Even under adverse weather conditions, PG&E slack capacity will be around 15%. Storage provides seasonal reliability for periods when daily and monthly demand exceeds natural gas transmission capacity. Wild Goose storage and Lodi storage facilities are also available to gas consumers and marketers serving customers within PG&E's service area.

Natural gas demand in PG&E's service area will decrease from levels experienced in 2000-2001, if hydro conditions return to normal and demand for gas-fired generation decreases as expected. Figure 3-6 shows PG&E's forecasted monthly demand, including off-system demand, under average temperatures and normal hydro conditions compared to PG&E's firm intrastate transmission capacity.<sup>60 61</sup> PG&E's forecast natural gas demand under scenarios other than average temperatures and normal hydro conditions confirm that PG&E's gas infrastructure will provide a high level of service for all customers through 2006.

This CPUC's capacity analysis for PG&E is conservative in that the slack capacity figures shown on Table 3-2 for PG&E only include firm natural gas transmission capacity. Depending on operating conditions, PG&E typically has up to 100 MMcfd of additional interruptible capacity available in the summer and 200 MMcfd in the winter. On the other hand, the CEC has indicated that PG&E receipts of natural gas at Malin during periods of cold weather may be reduced due to increased demand in the Pacific Northwest and Canada.

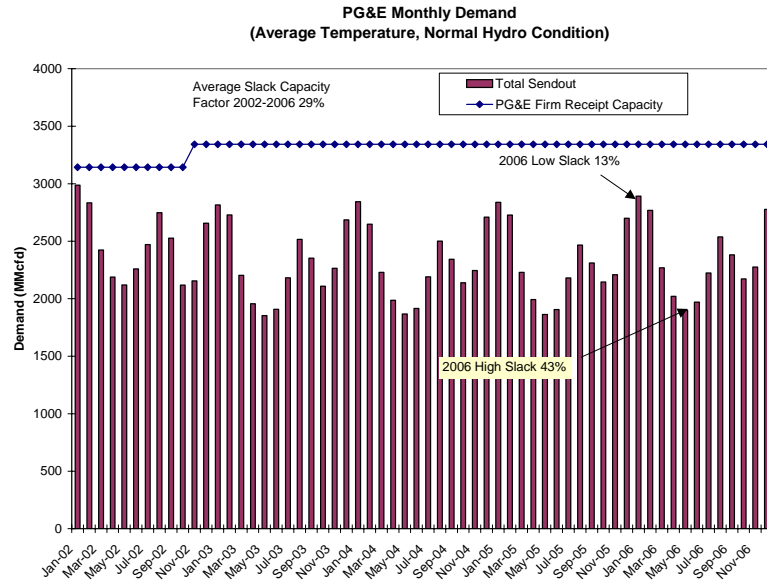
---

<sup>59</sup> For this analysis, the CPUC calculate PG&E firm capacity to be 3,143 MMcfd through October 2206, and 3,293 MMcfd after October 2002.

<sup>60</sup> The CPUC has assumed for the purpose of this report that the proposed Redwood Path expansion will be in service at full capacity by the beginning of the 2002-2003 winter heating season, i.e. by November 1, 2002. This expansion adds 200 MMcfd to the PG&E backbone natural gas transmission system, an increase of 6.4%.

<sup>61</sup> PG&E firm "intrastate" backbone transmission capacity refers to the amount of transmission capacity available to take away gas from interstate pipelines connected to PG&E on a very reliable basis. It is sometimes also referred to as the firm "takeaway" capacity, or the firm "receipt point" capacity.

**Figure 3-6: PG&E's Intrastate Transmission Capacity Can Meet Demand Over the Next Five Years**



Source: Demand Forecast from PG&E, August 2001

### Abnormal Peak Day Defined

A peak load that would only be experienced on one day in 90 years. This is the most extreme test of PG&E's gas system.

The CEC forecasts less slack capacity for the PG&E system than PG&E's internal forecasts under average temperatures and normal hydro conditions.<sup>62</sup> The CEC forecasts slack capacity on PG&E's system above 20% in 2002 through 2004, falling to 17% in 2006. The difference between the CEC's forecast and PG&E's forecast is primarily due to the CEC's higher forecast of electric generation gas demand on the

<sup>62</sup> CEC forecasts under hot or cold temperatures or dry hydro conditions are not available at this time.

PG&E system. PG&E and the CEC demand forecasts show that PG&E's transmission and storage infrastructure will be adequate during the forecast period.

**PG&E's TRANSMISSION SYSTEM COULD EXPERIENCE LIMITED CURTAILMENTS UNDER EXTREME CONDITIONS.**

**If PG&E's gas infrastructure is adequate under a cold temperature year, why would system-wide curtailments possibly occur on very cold days?**

- A cold temperature year reflects annual temperatures that are colder than historic averages.
- On a monthly basis, these cold temperatures would not strain the PG&E system.
- On a small number of days, temperatures can get very cold. The cold spell might occur for a few days even during an otherwise average or warm year.
- Very cold temperatures could cause gas demand to rise to such an extent that PG&E's backbone transmission and storage system could not meet total demand.

Under extremely cold weather conditions, natural gas curtailments could occur on PG&E's system even under normal hydro conditions. On a one in 90 year "abnormal peak day" (APD), all core customer demand would be served but noncore customers would be subject to curtailment.<sup>63</sup> Limited curtailments could also occur on very cold days with a chance of occurrence of once in twenty years. The point at which curtailments would develop depends on noncore customer use of storage, which could be provided by PG&E, Wild Goose, or Lodi. Noncore storage could reduce, if not eliminate, the threat of curtailment for noncore customers. Additional Redwood Path capacity will also lessen the likelihood of curtailments.

**PG&E's Local Natural Gas Transmission System**

PG&E's local natural gas transmission system is designed to provide reliable service under the following two load conditions: 1) under an Abnormal Peak Day, PG&E could serve all core load, or 2) under a Cold Winter Day, PG&E could serve all customer

---

<sup>63</sup> PG&E provided specific demand information on very cold days to the CPUC, but requested that this information remain confidential, under the provisions of California Public Utilities Code Section 583.



load.<sup>64</sup> At the CPUC's April 17, 2001 workshop on gas infrastructure, PG&E indicated that very cold weather (conditions colder than a Cold Winter Day) could result in noncore diversions and curtailments. Under weather conditions colder than a Cold Winter Day, curtailments could occur, and diversions of noncore supply could be needed to support core demand. In the CPUC's proceeding, R.01-03-023,<sup>65</sup> PG&E stated that a local curtailment event "with brief, limited effect on noncore customers, has about a one-in-four chance of occurrence during the winter." PG&E suggested that the above design criteria could be changed, but local transmission system improvements would need to be made over several years and the costs would be significant. PG&E estimated a one-time cost of \$50 million and annual expenses of \$19 million to move to design criteria that would provide a one-in-twenty probability of curtailment due to local transmission constraints, rather than one-in-four probability.

Curtailments in PG&E's territory are more likely to occur on its local natural gas transmission system than on the backbone transmission system, but these curtailments would have only limited effects on a relatively small number of customers and only for a few days at most. The CPUC will evaluate whether local transmission system improvements are necessary for PG&E, and if so, and who should pay for such improvements.

There is no need for the Power Authority to fund additional infrastructure expansions in Northern California at this time. The CPUC will continue to review PG&E's ability to serve its customers and the adequacy of the PG&E gas infrastructure, and will direct when and how PG&E should construct additional capacity as necessary. This review may occur in one of several formal Commission proceedings (such as the recently filed PG&E application to extend the Gas Accord, the next PG&E BCAP, or the next PG&E GRC).

## **SoCALGAS' SYSTEM FORECAST**

---

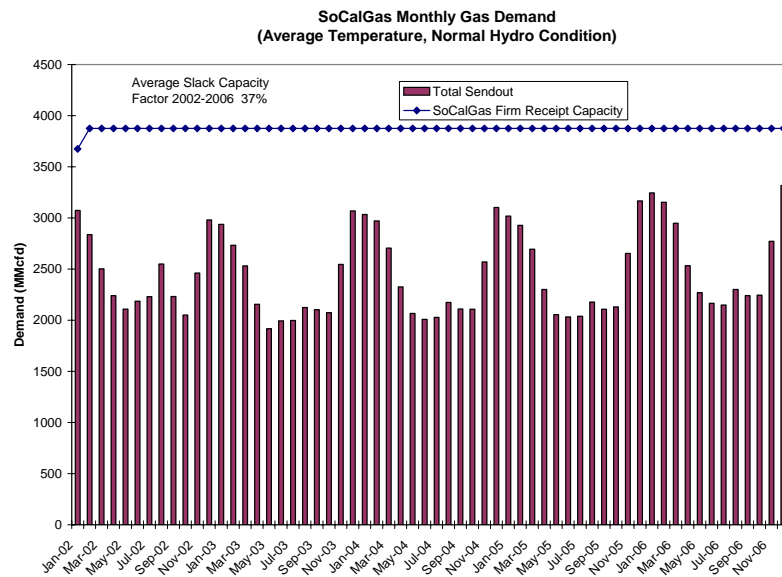
<sup>64</sup> For PG&E, an Annual Peak Day (APD) occurs when the average system temperature hits 29 degrees or lower. This condition is only expected once every 90 years. Under a Cold Winter Day, average system temperature hits 38 degrees. This condition is expected to occur about once every four years.

<sup>65</sup> In Order Instituting Rulemaking (R.) 01-03-023, the Commission is reviewing the noncore customer curtailment priorities for the PG&E and SoCalGas service areas.

# **SoCalGas' Natural Gas Transmission and Storage System**

The CPUC forecasts that SoCalGas will have ample natural gas transmission and storage capacity to serve all customer demand on its system. SoCalGas forecasts (see Figure 3-7) that it will use only about 63% of average transmission capacity under normal conditions during the five-year forecast period, providing an average slack transmission capacity of 37%.<sup>66</sup>

**Figure 3-7: SoCalGas Natural Gas Transmission Capacity Can Meet Demand Over the Next Five Years**



Source: Southern California Gas Company, September 2001

## **SoCalGas Will Likely Experience Significant Slack Capacity Over the Next Five Years.**

The CPUC forecasts significant slack capacity on SoCalGas system during the forecast period, because demand is expected to decline while the utility's gas transmission and storage capacity will increase. With a return to normal precipitation levels, hydroelectric

<sup>66</sup> For this analysis, the CPUC calculates SoCalGas' firm transmission capacity to be 3,675 MMcfd in January 2002, and 3,875 MMcfd thereafter.

generation, along with new more efficient gas-fired power plants, will reduce gas-fired power plant demand below 2000-2001 levels. By February 2002, SoCalGas' firm receipt capacity will increase by more than 10% (375 MMcfd). In addition to the expanded transmission capacity, SoCalGas will also increase capacity at its Aliso Canyon and La Goleta storage fields.

The CEC also anticipates high slack capacity for the SoCalGas system. The CEC forecasts 36% slack capacity for SoCalGas in 2002, and 35% slack capacity by 2007. The CPUC expects average slack capacity on SoCalGas' system under adverse conditions will be above 25% (as shown in Table 3-2).

SoCalGas' infrastructure is capable of serving all customer demand even on an extreme peak day.<sup>67</sup> SoCalGas' system, including storage, is able to serve about 6,000 MMcf/d. Historical peak demand has been 5,300 MMcfd. SoCalGas' forecasted core extreme peak day demand and typical noncore winter demand are shown in Table 3-3. SoCalGas has the capacity to meet all customer demand if its noncore customers fully utilize storage capacity.

**Table 3-3: SoCalGas Forecasts of Natural Gas Demand  
For an Extreme Peak Day  
(MMcfd)**

<i>Year</i>	<i>Core EPD</i>	<i>Noncore Demand</i>	<i>Total Demand</i>
2002	3,137	2,341	5,478
2003	3,148	2,034	5,182
2004	3,190	2,002	5,192
2005	3,225	2,072	5,297
2006	3,388	Not Available	

*Source: Southern California Gas Company, September 2001*

No additional measures need to be taken at this time by the Power Authority to require additional natural gas system capacity in the SoCalGas service territory. SoCalGas' backbone natural gas transmission and storage capacity is adequate for the forecast period.

### **SoCalGas' LOCAL GAS TRANSMISSION SYSTEM**

The CPUC has identified two local gas transmission points on the SoCalGas system with potential constraints. These constraints are located on the transmission pipelines located in the San Joaquin and Imperial Valleys. Expansions of these lines may be necessary to minimize bottlenecks and reduce the possibility of curtailments. The CPUC is reviewing these local transmission constraint points in Investigation (I.) 00-11-002.

SoCalGas will file a General Rate Case application toward the end of 2002 for a 2004 Test Year.<sup>68</sup> In addition, SoCalGas will likely file another Biennial Cost Allocation Proceeding application in late 2003 or in 2004. These proceedings will give the CPUC opportunities to review again the adequacy of SoCalGas' infrastructure, and require SoCalGas to expand its system further, if necessary, with adequate lead-time to assure a high level of reliability. The CPUC will also address policy regarding SoCalGas' natural gas transmission capacity in I. 00-11-002.<sup>69</sup>

### **SDG&E's SYSTEM FORECAST**

SDG&E receives all of its natural gas from SoCalGas on two pipelines, at the San Diego County line at the San Onofre and Rainbow metering stations. SDG&E has a small storage contract with SoCalGas, but the storage fields are not in the SDG&E area. Consequently, SDG&E's peak system demand must be met entirely via the natural gas transmission capacity of the San Onofre and Rainbow lines.

SDG&E experienced significant gas curtailments on its system during the winter of 2000-2001, because natural gas demand by large electric generation customers was much higher than in previous years. A significant portion of this increased power-plant

---

<sup>67</sup> On SoCalGas' system, an extreme peak day is defined as a day when average system-wide temperature is 38 degrees. This has a probability of occurrence of once in every 35 years.

<sup>68</sup> On October 10, 2001, the Commission issued D.01-10-030, granting SoCalGas and SDG&E's request to defer their General Rate Case (GRC) for one year. The "test year" for the GRC will be 2004, with the SoCalGas and SDG&E GRC application expected in late 2002.

<sup>69</sup> In Order Instituting Investigation (I.) 00-11-002, the CPUC is reviewing the transmission capacity of the SoCalGas and SDG&E systems, and is considering design criteria for transmission capacity additions to those systems.

demand was due to the large new gas-fired power plant that came online in Rosarito Mexico in the summer of 2000.

In May 2000, SoCalGas reduced the likelihood of future curtailments in its territory by adding 70 MMcfd of capacity to the pipeline that supplies most of the gas to the SDG&E system.

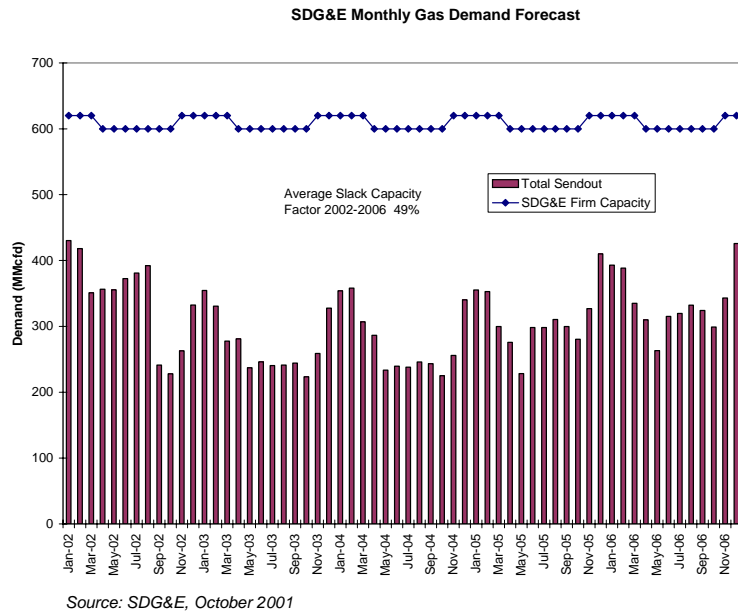
#### **CPUC Forecasts Adequate Transmission Capacity on SDG&E's System**

Under most scenarios, the CPUC expects the existing transmission capacity into the SDG&E system to be more than adequate to serve all average monthly demand in the SDG&E territory (see Figure 3-8). Similarly, the latest CEC annual forecasts of gas demand indicate ample natural gas transmission capacity on the SDG&E system. The CEC forecasts indicate slack capacity of about 50% during the forecast period.<sup>70</sup>

**Figure 3-8: SDG&E Transmission Capacity Is Able to Meet  
Forecast Average Monthly Demand**

---

<sup>70</sup> For this analysis, the CPUC uses SDG&E firm transmission capacity of 620 MMcfd in the winter and 600 MMcfd in the summer.



The major uncertainties related to SDG&E's ability to serve its customers are: 1) whether the North Baja pipeline will actually be completed, 2) how much SDG&E gas load that project will serve, 3) how much new electric generation facilities will impact the operation of electric generators in the SDG&E area, and 4) whether adverse weather conditions will occur, such as dry hydro conditions or very cold weather.

Curtailments could still occur on the SDG&E system in the winter of 2001-2002 on very cold days. After the winter of 2001-2002, assuming that the North Baja pipeline is constructed and completed by November 2002, the probability of noncore customer curtailments falls to about once in twenty to 35 years.

In Investigation (I.) 00-11-002, the CPUC is reviewing the SDG&E system to determine if any additions are needed. This evaluation of potential SDG&E transmission capacity additions will take into account the timetable for proposed additions, the costs, and future natural gas demand. Based on the evidence, the CPUC will direct SDG&E to take reasonable measures to enhance its transmission infrastructure. If hydro conditions return to normal, and the North Baja pipeline is built and serves some of the demand in

the SDG&E area, the likelihood of system-wide gas curtailments will be further reduced or eliminated. At this time, the North Baja project construction schedule is generally on track.<sup>71</sup>

---

<sup>71</sup> On May 16, 2001, the FERC approved the non-environmental portions of North Baja Pipeline's application to build the 80-mile U.S. portion of the pipeline. Approval of the environmental portion is pending. In December 2000, Mexico's Comision Reguladora de Energia granted a permit to build the Mexican leg of the pipeline.

**CHAPTER 4**  
**CONCLUSIONS AND RECOMMENDATIONS**

**Conclusions and Recommendations**

**The Power Authority Should Not Fund New Gas Infrastructure Projects**

- Infrastructure additions coming online in the near term will enhance service.
- Gas demand expected to be lower than 2000-2001.

**Conservation and More Efficient Electricity Production Will Reduce Demand on California's Natural Gas Infrastructure**

- Renewable electricity production reduces gas demand and improves environmental quality.
- Energy efficiency programs help reduce demand.

**Improved Coordination Between Electric and Gas Operations Can Enhance Reliability**

**The CPUC Should Continue to Evaluate the Need For Gas Infrastructure Expansions**

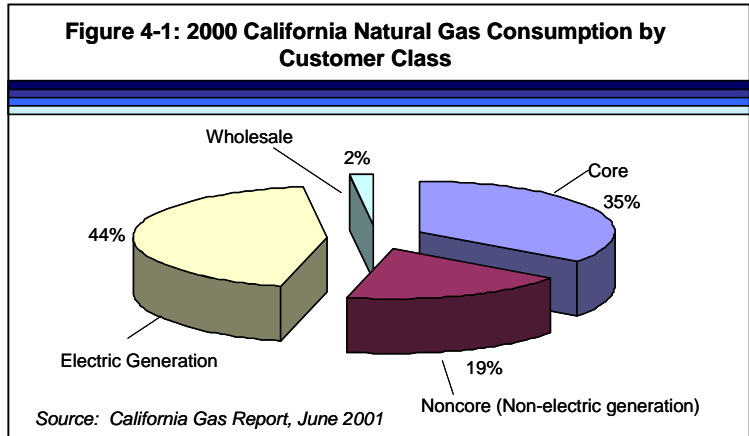
**A. CONSERVATION, RENEWABLE ENERGY, AND MORE EFFICIENT PRODUCTION OF ELECTRICITY WILL REDUCE DEMAND ON CALIFORNIA'S NATURAL GAS INFRASTRUCTURE**

Gas-fired power plants use more natural gas than any other customer group, as shown in Figure 4-1. Any efforts to reduce electric demand or improve the efficiency of the gas-fired plants will reduce gas demand. Minimizing gas demand reduces costs for consumer by reducing the need for expensive improvements to the system and keeping the price for gas low.

**How To Manage California's Gas System Efficiently**

- Increase the availability of renewable generation technologies.
- Promote conservation and energy efficiency investments.
- Coordinate the daily operations of the electric and gas system to maximize efficiency.

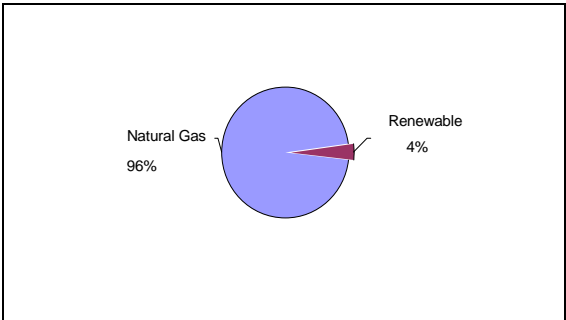




**RENEWABLE ELECTRIC GENERATION TECHNOLOGIES REDUCE DEMAND AND IMPROVE ENVIRONMENTAL QUALITY.**

Over 95% of the new power plants being proposed in California are gas-fired power plants as shown in Figure 4-2. Initiatives that promote the construction of renewable energy projects help keep gas demand and prices down and provide environmental benefits. Every 1,000 MW of new renewable generation installed instead of gas-fired plants would save approximately 120 million cubic feet of gas per day<sup>72</sup> and avoid the pollution that would be produced by the use of that gas.

**Figure 4-2: Planned California Generation 2001-2007  
New Capacity by Fuel Source**



Source: TURN Based on CEC Data

<sup>72</sup> Assuming the new renewable power plant displaces a new base load (70% capacity factor) gas fired power plant operating at 7,000 Btu/kWh.

The CPUC is considering the role of renewable energy in meeting California's future electricity needs in its current rulemaking regarding utility procurement (R. 01-11-024). Other initiatives to promote renewable energy include: increased tax credits at the state and federal level, requests for bids for renewable energy by the California Power Authority, and a recently passed proposal in San Francisco to finance 50 MW of renewable/energy conservation projects (Proposition H).

#### **ROLE OF ENERGY EFFICIENCY IN REDUCING GAS DEMAND**

Increased energy efficiency, coupled with voluntary efforts to reduce energy usage during times of peak demand, reduces natural gas usage. In 2000, the CPUC funded energy efficiency measures that saved close to 1 million megawatt-hours of energy – enough energy to power a city the size of San Jose for a year. Eliminating this electricity usage kept inefficient gas-fired power plants idle, which avoided the consumption of an estimated 32 million cubic feet of gas per day. CPUC funded energy efficiency programs that directly focus on gas usage provided an additional saving of 4 million cubic feet day.

Voluntary efforts to reduce electricity usage, such as the Governor's "Flex-your-Power" and "20/20" programs, have been very successful in reducing gas usage by curbing electric demand. Developing voluntary programs that urge customers to reduce natural gas usage during periods of peak usage may also be an effective way to maintain the reliability of the gas system.

#### **B. IMPROVED COORDINATION BETWEEN ELECTRIC AND GAS OPERATIONS CAN ENHANCE GAS SYSTEM RELIABILITY**

Increased coordination between electric dispatch (primarily by the ISO) and utility gas operations could improve reliability. For example, when gas supplies are tight, the ISO could seek to increase hydroelectric generation or out-of-state power purchases to reduce the gas demand of the gas-fired power plants. Similarly, the ISO could help avoid local gas constraints by taking into consideration the condition of the gas transmission system serving the gas-fired plants that it dispatches.

**C. THE POWER AUTHORITY SHOULD NOT FUND NEW GAS INFRASTRUCTURE PROJECTS**

The CPUC expects sufficient infrastructure to provide a high degree of reliability for gas consumers during the next five years. This infrastructure provides California with ample access to several sources of competitively priced gas supply. The CPUC forecasts that the addition of new and efficient gas-fired power plants and a return to normal hydroelectric availability will work together to reduce gas demand.

**Why Power Authority Funding is Not Necessary**

- There is adequate infrastructure to provide a high degree of reliable gas service for the next five years.
- Infrastructure expansions are already underway.
- There are numerous proposals to expand interstate pipeline capacity to California.

**INFRASTRUCTURE ADDITIONS COMING ONLINE IN THE NEAR TERM WILL ENHANCE SERVICE.**

In the next few years, California's transmission and storage systems will be improved with the addition of new capacity. In 2002, several new transmission additions will be made to the PG&E and SoCalGas systems. These expansions will add 200 MMcf of transmission capacity to the PG&E system, and at least 375 MMcf of transmission capacity to the SoCalGas system.

California will have increased gas storage over the next five years. In December 2001, the new Lodi gas storage facility will begin operations; in 2002, SoCalGas will be expanding its storage capacity. In addition, Wild Goose Storage and PG&E are both working on plans to expand their storage capacities.

#### **D. THE CPUC SHOULD CONTINUE TO EVALUATE THE NEED FOR GAS INFRASTRUCTURE EXPANSIONS**

<p><b>The CPUC Should Continue to Evaluate the Need for Gas Infrastructure Expansions</b></p> <hr/> <ul style="list-style-type: none"> <li>• Capacity in some areas could be expanded, depending on design criteria, level of service, and customers' willingness to pay.</li> <li>• CPUC should continue to evaluate need for expansions.</li> <li>• CPUC to conduct another overall evaluation of California's gas infrastructure in two years.</li> </ul>
--

The CPUC will continue to keep close watch on California's gas infrastructure to ensure reliable service at reasonable rates. In pursuing this mission, the CPUC will approve prudent investments and determine how consumers pay for those investments. In two years' time, the Commission shall conduct an overall evaluation of California's gas infrastructure to ensure that the State's natural gas needs will be met.

Capacity in areas subject to potential curtailments could be expanded, but any additions would have to be evaluated against the costs of the project. The California gas utility systems are designed to provide service to all core customers under extreme weather conditions, and to provide a high degree of reliability to noncore customers under adverse conditions. The CPUC has found that there is the possibility of limited curtailments under adverse conditions. Expanding the infrastructure to serve all customers (core and noncore) under these limited conditions would result in higher rates for all customers. These costs would have to be carefully considered by the Commission before such expansion projects are approved.

The CPUC allows noncore customers to make their own calculation of whether or not enhanced reliability is worth the additional costs. Traditionally, noncore customers have preferred low rates in exchange for the very infrequent chance of a short curtailment.

## GLOSSARY

**Abnormal Peak Day** – On Pacific Gas and Electric's system, an abnormal peak day is defined as a system-weighted mean temperature of 29° Fahrenheit, which has a probability of occurring once in 90 years. On SoCalGas' system, an extreme peak day is defined as a day when the average system-wide temperature is 38° Fahrenheit. This has a probability of occurring once in 35 years.

**Average temperature year** – A forecast year based on long-term average recorded temperatures, or "heating degree days."

**Biennial Cost Allocation Proceeding (BCAP)** - A natural gas utility rate-setting proceeding generally held every two years to allocate the transportation revenue requirement adopted in the utility's General Rate Case (GRC) among gas customer classes.

**BCF - Billion Cubic Feet** - a volumetric measurement of gas. One Bcf is approximately equal to 1.027 trillion Btu.

**Bcfd** – Billion cubic feet per day

**BTU - British Thermal Unit** – A unit of measurement equal to the amount of heat energy required to raise the temperature of one pound of water one degree Fahrenheit. This unit is commonly used to measure the quantity of heat available from complete combustion of natural gas.

**Bypass** - Natural gas service provided directly by a FERC-regulated interstate pipeline or by a California producer without using the facilities of the CPUC-regulated utilities.

**CEC** – California Energy Commission

**Cold temperature year** – A forecast year based on historically cold weather, e.g. the temperatures recorded over the last 40 years.

**Core customer** – Customers with average usage of less than 20,800 therms per month. Most core customers are residential and small commercial customers.

**CPUC** – California Public Utilities Commission

**Cubic Foot of Gas** – Volume of natural gas that, at a temperature of 60 degrees Fahrenheit and an absolute pressure of 14.73 pounds per inch (psi), occupies one cubic foot.

**Curtailement** - Partial or complete temporary suspension of gas deliveries to a customer or customers.

**Dth - Decatherm** - Ten therms, a common unit used in burner-tip prices (\$/Dth). One therm equals 100,000 Btus; a decatherm is equal to a million Btus.

**Degree Day (Heating)** – A measure of how much actual temperatures fall below a standard reference temperature. For SoCalGas and SDG&E, the reference temperature is 65° F; for PG&E, the reference temperature is 60° F. Degree-days provide a basis for computing how much natural gas and electricity are needed for space heating.

**Dry hydro condition** - A “dry hydro” condition in this report is defined as a level of hydroelectric generation that is exceeded in 95% of years in the Western Systems Coordinating Council (WSCC).

**FERC** - Federal Energy Regulatory Commission

**Firm capacity** - When referring to interstate pipeline, backbone transmission, or storage, firm capacity is capacity that is available under virtually all operating conditions 365 days a year.

**General Rate Case (GRC)** - A major regulatory proceeding for California utilities, during which regulators examine in depth a utility’s costs and operations as part of the overall process to establish a utility’s revenue requirement.

**Heat rate** - A measure of the amount of thermal energy needed to generate a given amount of electric energy.

**Hot temperature year** – A forecast year based on historically warm weather.

**Interruptible capacity** – Interstate pipeline, backbone transmission or storage capacity, which may be available from time to time, but cannot be assured under all operating conditions.

**MMCF** – One million cubic feet of gas.

**MMBtu** – One million British Thermal Units.

**MMcfd** – One million cubic feet of gas per day.

**MW** –Megawatt. A basic unit of measure for electric power. One megawatt is sufficient to meet the electric demand of about 1,000 households.

**Noncore customers** - Customers who use more than 20,800 therms per month. Noncore customers typically are large commercial, industrial, cogeneration, wholesale, and electric generation customers.

**Open season** - Designated time period in which potential customers for a proposed transmission or storage project must submit their service elections for capacity to the interstate pipeline, utility, or storage provider. For the CPUC-regulated utilities, noncore customers that do not elect firm capacity during an open season may receive default service, or they may continue to receive service based on prior elections depending upon tariff provisions and available capacity.

**Peak Day** - the day during which the highest load occurred during a specified period.

**Receipt Capacity** – The amount of backbone transmission capacity a utility has to receive gas at each connection with another pipeline system.

**Slack capacity** – the amount of unused transmission capacity divided by the total firm capacity.

**Therm** – Unit of heat equal to 100,000 British thermal units; approximately 100 cubic feet.

**WSCC** – Western Systems Coordinating Council

## STATE OF CALIFORNIA



CONSUMER POWER AND ENERGY RESOURCES PUBLIC UTILITIES

CONSERVATION CONSERVATION AND COMMISSION

FINANCING AUTHORITY DEVELOPMENT COMMISSION

**ENERGY ACTION PLAN**

California is a diverse and vibrant society. The fifth largest economy in the world, California's population is expected to exceed 40 million by 2010. California's economic prosperity and quality of life are increasingly reliant upon dependable, high quality, and reasonably priced energy. Following the biggest electricity and natural gas crisis in its history, the state is well aware of the need for stable energy markets, reliable electricity and natural gas supplies, and adequate transmission systems. Looking forward, it is imperative that California have reasonably priced and environmentally sensitive energy resources to support economic growth and attract the new investment that will provide jobs and prosperity throughout the state.

California's principal energy agencies have joined to create an Energy Action Plan. It identifies specific goals and actions to eliminate energy outages and excessive price spikes in electricity or natural gas. These initiatives will send a signal to the market that California is a good place to do business and that investments in the more efficient use of energy and new electricity and natural gas infrastructure will be rewarded. This approach recognizes that California currently has a hybrid energy market and that state policies can capture the best features of a vigorous, competitive wholesale energy market and renewed, positive regulation. This approach will be ever mindful of the need to keep energy rates affordable, and is sensitive to the implications of energy policy on global climate change and the environment generally.

While this Plan lays out specific actions, it is a living document. It is a blueprint that is subject to change over time. The agencies will use it to give their efforts direction, focus, and precision, but some of the specific actions cited are subject to further proceedings so may need to be fine-tuned or changed to best meet the overall goals.

**Energy Action Plan Goal**

The goal of the Energy Action Plan is to:

**Ensure that adequate, reliable, and reasonably-priced electrical power and natural gas supplies, including prudent reserves, are achieved and**

P361-A05-1

This is one of seven files Thomas C. Nielsen submitted on a CD to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The other six files on the CD are included as 2006 Comment Letter Attachments P361-A01, P361-A02, P361-A03, P361-A04, P361-A06, and P361-A07.

P361-A05-1



**provided through policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers.**

The energy agencies intend to achieve this through six specific means:

- \_ Meet California's energy growth needs while optimizing energy conservation and resource efficiency and reducing per capita electricity demand.
- \_ Ensure reliable, affordable, and high quality power supply for all who need it in all regions of the state by building sufficient new generation.
- \_ Accelerate the state's goal for renewable resource generation to 2010.
- \_ Upgrade and expand the electricity transmission and distribution infrastructure and reduce the time before needed facilities are brought on line.
- \_ Promote customer and utility owned distributed generation.
- \_ Ensure a reliable supply of reasonably priced natural gas.

#### **The Agencies are Accountable for Stewardship of California's Energy Future**

The state's principal energy agencies are committed to active and continued cooperation. This is unprecedented. To implement this Energy Action Plan agencies pledge:

- \_ To discuss critical energy issues jointly through open meetings and ongoing informal communication.
- \_ To share information and analyses to minimize duplication, maximize a common understanding and ensure a broad basis for decision-making.
- \_ To bring joint policy recommendations about major energy issues to the Governor and Legislature.

The state needs to guide development of the energy system in the public's best long-term interest, to anticipate potential problems, and to make timely decisions to resolve problems. Specifically, the agencies commit to:

- \_ Provide decision-makers impartial assessments of the state's immediate and long-term electricity and natural gas demands, resources, and prices.
- \_ License and, where necessary, fund construction of new energy facilities that are consistent with the reliability, economic, public health, and environmental needs of the state.
- \_ Ensure that the utilities are able to carry out their obligation to serve, including having adequate reserves, recognizing this is a critical component of the current hybrid energy system.
- \_ Restore investor and private sector confidence in California's energy markets.

\_ Develop an "early warning" system to alert policy makers of potential future problems.

\_ Work with FERC to redesign market rules and prevent manipulation of the energy markets.

\_ Partner with governmental and other groups in western North America to pursue commonly held energy goals.

\_ Make continuing progress in meeting the state's environmental goals and standards, including minimizing the energy sector's impact on climate change.

### **Shared Principles and Strategies Will Guide this Stewardship**

Achieving the overall goal and implementing the proposed actions require close cooperation between the state's energy agencies and means establishing and following common principles and strategies. In particular, the agencies intend to use market forces and regulatory approaches to operate the system in the best, long-term interest of the public: the consumers, the ratepayers, and the taxpayers. This means agency actions will attract private investment into California's energy infrastructure to stretch and leverage public funds and consumer dollars. The agencies must also provide appropriate regulatory guidance, price signals, and incentives to all Californians to use energy efficiently. The agencies will achieve rate stability and provide affordable energy, particularly for low-income consumers, through progressive rate design.

To protect the public's health and safety and ensure our quality of life, the agencies support the most cost-effective and environmentally sound strategies, including consideration of global climate change. The agencies also will work to ensure that low-income populations do not experience disproportionate adverse impacts from the development of new energy systems.

### **The Agencies' Approach Will be Open and Timely**

Achieving the overall goal requires thoughtful planning, followed by specific, timely actions. This process begins with an ongoing assessment of the current and future energy system and the state's economic needs. It must consider a range of risks and uncertainties and must identify and inform policy makers of potential shortfalls and vulnerabilities. The agencies and state policy makers need to respond by carefully considering available options, balancing costs and benefits to meet state goals, selecting policy choices, and devising actions to implement those policy choices.

The result must be a set of interrelated actions that complement each other, provide risk protection, and eliminate the costs and conflicts that would occur if each agency pursued isolated, uncoordinated objectives. Each agency will need to implement the action plan in its individual proceedings but in concert with each other.

For the action plan to achieve the desired outcomes, it must rely on a common vision and be based on an integrated energy resource plan indicative of the state's future energy needs. The Energy Commission's integrated energy assessment process, as set forth by the Governor and Legislature last year in SB 1389, represents a critical step in identifying future statewide energy needs. The agencies will participate in this process, assessing demand growth and available supply, and balancing various state policy objectives to determine the combination of conservation and infrastructure investments that best meet California's short- and long-term needs. The Public Utilities Commission and the Power

Authority will carry out their energy-related duties and responsibilities based upon the information and analyses contained in the assessment.

The Action Plan envisions a "loading order" of energy resources that will guide decisions made by the agencies jointly and singly. First, the agencies want to optimize all strategies for increasing conservation and energy efficiency to minimize increases in electricity and natural gas demand. Second, recognizing that new generation is both necessary and desirable, the agencies would like to see these needs met first by renewable energy resources and distributed generation. Third, because the preferred resources require both sufficient investment and adequate time to "get to scale," the agencies also will support additional clean, fossil fuel, central-station generation. Simultaneously, the agencies intend to improve the bulk electricity transmission grid and distribution facility infrastructure to support growing demand centers and the interconnection of new generation.

### **Energy Services are Growing, are Essential, and the Delivery Systems are Complex**

As a context for this plan, Californians must understand the essential and complex nature of the state's energy resources. Currently the state uses 265,000 gigawatt-hours of electricity per year. Consumption is growing 2 percent annually. Over the last decade, between 29 percent and 42 percent of California's in-state generation used natural gas. Another 10 - 20 percent was provided by hydroelectric power that is subject to significant annual variations. Almost one third of California's entire in-state generation base is over 40 years old. California's transmission system is aging also. While in-state generation resources provide the majority of California's power, California is part of a larger system that includes all of western North America. Fifteen to thirty percent of statewide electricity demand is served from sources outside state borders.

Peak electricity demands occur on hot summer days. California's highest peak demand was 52,863 megawatts and occurred July 10, 2002. Peak demand is growing at about 2.4 percent per year, roughly the equivalent of three new 500-megawatt power plants. Residential and commercial air conditioning represent at least 30 percent of summer peak electricity loads.

California's demand for natural gas also is increasing. Currently the state uses 2 trillion cubic feet of natural gas per year. Historically the primary use of this fuel was for space heating in homes and businesses. Electricity generation's dependence on relatively clean-burning natural gas now means that California's annual natural gas use by power plants is expected to increase. Overall, natural gas use is growing by 1.6 percent per year. Eighty-five percent of natural gas consumed in California is supplied by pipelines from sources outside the state.

### **Six Actions**

The agencies propose six sets of actions of critical importance that need to be undertaken now. These are:

#### ***I. Optimize Energy Conservation and Resource Efficiency***

California should decrease its per capita electricity use through increased energy conservation and efficiency measures. This would minimize the need for new generation, reduce emissions of toxic and criteria pollutants and greenhouse gases, avoid environmental concerns, improve energy reliability and contribute to price stability. Optimizing conservation and resource efficiency will include the following specific actions:

1. Implement a voluntary dynamic pricing system to reduce peak demand by as much as 1,500 to 2,000 megawatts by 2007.<sup>1</sup>
2. Improve new and remodeled building efficiency by 5 percent.<sup>2</sup>
3. Improve air conditioner efficiency by 10 percent above federally mandated standards.<sup>3</sup>
4. Make every new state building a model of energy efficiency.
5. Create customer incentives for aggressive energy demand reduction.
6. Provide utilities with demand response and energy efficiency investment rewards comparable to the return on investment in new power and transmission projects.
7. Increase local government conservation and energy efficiency programs.
8. Incorporate, as appropriate per Public Resources Code section 25402, distributed generation or renewable technologies into energy efficiency standards for new building construction.
9. Encourage companies that invest in energy conservation and resource efficiency to register with the state's Climate Change Registry.

## ***II. Accelerate the State's Goal for Renewable Generation***

In 2002, the Governor signed the Renewable Portfolio Standard (RPS), SB 1078. This standard requires an annual increase in renewable generation equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. The state is aggressively implementing this policy, with the intention of accelerating the completion date to 2010, and will:

1. Add a net average of up to 600 MW of new renewable generation sources annually to the investor-owned utility resource portfolio.<sup>4</sup>
2. Establish by June 30, 2003, key RPS implementation rules, including market price benchmarks, standard contract terms, flexible compliance and penalty mechanisms, and bid ranking criteria under the "least cost-best fit" rubric. Other key RPS rules will be developed and refined throughout 2003.
3. Facilitate an orderly and cost-effective expansion of the transmission system to connect potential renewable resources to load.
4. Initiate the development of RPS compliance rules for energy service providers and community choice aggregators.
5. Coordinate implementation with all relevant state agencies and with municipal utilities to facilitate their achievement of the standard.

## ***III. Ensure Reliable, Affordable Electricity Generation***

The state needs to ensure that its electrical generation system, including reserves, is sufficient to meet all current and future needs, and that this reliable and high quality

electricity comes without over-reliance on a single fuel source and at reasonable prices. To these ends the state will:

1. Add new generation resources to meet anticipated demand growth, modernize old, inefficient and dirty plants and achieve and maintain reserve levels in the 15 percent-18 percent range.<sup>5</sup> Current estimates show a statewide need for 1500 - 2000 MW per year.<sup>6</sup>
2. Finance a few critical power plants that the agencies conclude are necessary and would not otherwise be built. An estimated 300 MW of peaking capacity located in critical areas is needed to provide local reliability, help achieve adequate reserves, and reduce congestion and the need for new transmission lines.<sup>7</sup>
3. Work with the California Independent System Operator (CAISO) to implement generator maintenance standards and an oversight process to support coordinated availability of generation.<sup>8</sup>
4. Work with the CAISO to ensure the development of a workable, competitive wholesale energy market that has meaningful market power mitigation rules.
5. Monitor the electricity market to identify any exercise of market power and manipulation, and work to improve FERC-established market rules to correct any observed abuses.

#### ***IV. Upgrade and Expand the Electricity Transmission and Distribution Infrastructure***

Reliable and reasonably priced electricity and natural gas, as well as increasing electricity from renewable resources, are dependent on a well-maintained and sufficient transmission and distribution system. The state will reinvigorate its planning, permitting, and funding processes to assure that necessary improvements and expansions to the distribution system and the bulk electricity grid are made on a timely basis:

1. The agencies will collaborate, in partnership with other state, local, and non-governmental agencies with energy responsibilities, in the California Energy Commission's integrated energy planning process to determine the statewide need for particular bulk transmission projects. This collaboration will build upon the California Independent System Operator's annual transmission plan and evaluate transmission, generation and demand side alternatives. It is intended to ensure that state objectives are evaluated and balanced in determining transmission investments that best meet the needs of California electricity users.
2. The Public Utilities Commission will issue an Order Instituting Rulemaking to propose changes to its Certificate of Public Convenience and Necessity process, required under Public Utilities Code § 1001 et seq., in recognition of industry, marketplace, and legislative changes, like the creation of the CAISO and the directives of SB 1389. The Rulemaking will, among other things, propose to use the results of the Energy Commission's collaborative transmission assessment process to guide and fund IOU-sponsored transmission expansion or upgrade projects without having the PUC revisit questions of need for individual projects in certifying transmission improvements.
3. The Public Utilities Commission will ensure that IOUs build out and properly staff and maintain distribution systems to meet California's growth, provide reliable service, and stand ready to restore service after unplanned distribution system outages.

4. The Energy Commission will work with municipal utilities to help ensure completion of transmission expansion or upgrade projects in their systems for which the collaborative transmission assessment process finds a need.

#### ***V. PROMOTE CUSTOMER AND UTILITY OWNED DISTRIBUTED GENERATION***

Distributed generation is an important local resource that can enhance reliability and provide high quality power, without compromising environmental quality. The state is promoting and encouraging clean and renewable customer and utility owned distributed generation as a key component of its energy system. Clean distributed generation should enhance the state's environmental goals. This determined and aggressive commitment to efficient, clean and renewable energy resources will provide vision and leadership to others seeking to enhance environmental quality and moderate energy sector impacts on climate change. Such resources, by their characteristics, are virtually guaranteed to serve California load. With proper inducements distributed generation will become economic.

1. Promote clean, small generation resources located at load centers.
2. Determine whether and how to hold distributed generation customers responsible for costs associated with Department of Water Resources power purchases.
3. Determine system benefits of distributed generation and related costs.
4. Develop standards so that renewable distributed generation may participate in the Renewable Portfolio Standard program.
5. Standardize definitions of eligible distributed generation technologies across agencies to better leverage programs and activities that encourage distributed generation.
6. Collaborate with the Air Resources Board, Cal-EPA and representatives of local air quality districts to achieve better integration of energy and air quality policies and regulations affecting distributed generation.
7. The agencies will work together to further develop distributed generation policies, target research and development, track the market adoption of distributed generation technologies, identify cumulative energy system impacts and examine issues associated with new technologies and their use.

#### ***VI. ENSURE RELIABLE SUPPLY OF REASONABLY PRICED NATURAL GAS***

The high and volatile price of natural gas contributed significantly to the energy crisis in 2000-2001, and concerns about manipulation of the market and scarcity persist. The Governor's Natural Gas Working Group was formed to monitor natural gas demand, supply and price issues and facilitate the construction of California infrastructure projects. Yet California remains vulnerable to the volatile spot market. The agencies will pursue the following actions:

1. Identify critical new gas transmission, distribution and storage facilities needed to meet California's future needs.
2. Monitor the gas market to identify any exercise of market power and manipulation, and work to improve FERC-established market rules to correct any observed abuses.

3. Evaluate the net benefits of increasing the state's natural gas supply options, such as liquefied natural gas.

4. Support electric utilities and gas distribution companies entering into longer-term contracts as a hedge against volatile and high spot market prices.

In implementing this plan, the agencies are mindful that energy services - both natural gas and electric - are essential to every Californian's general welfare and to the health of California's economy. As actions to improve the reliability of these services are considered, the agencies will each take into account the effect the action will have on energy expenditures, the environment and climate change, and the overall economy. Alternatives to proposed actions will be evaluated in an integrated fashion, consider the cost of action or inaction, and consider the equitable distribution of costs among customer classes and groups.

While implementation of this Action Plan represents a challenge, it is an important step for the agencies to take together to help achieve the state's overall goal of adequate, reliable, and reasonably priced electrical power and natural gas supplies.

Adopted May 8, 2003 by a 3-2 vote of the CPUC.

Adopted April 30, 2003 by unanimous vote of the CEC.

Adopted April 18, 2003 by unanimous vote of the CPA.

<sup>1</sup> California is actively evaluating and implementing such pricing systems in a CPUC rulemaking (R.02-06-001). <sup>2</sup> The Energy Commission's 2005 building standards, to be adopted in 2003, when combined with training and enforcement, are expected to reduce energy needs in new buildings by approximately 5 percent. <sup>3</sup> New federal appliance standards will increase air conditioner efficiency by approximately 20 percent, but if California were granted a waiver from federal standards, by 2007 California air conditioner efficiency would increase another 10 percent. <sup>4</sup> Electricity sales by the Investor-owned utilities totaled about 169,000 GWh in 2001. The renewables portfolio standard requires an annual increase in renewable generation equivalent to 1 percent of sales, or about 1,700 GWh. Assuming a capacity factor of about 50 percent, this is roughly equivalent to 385 MW. Accelerating achievement of the RPS goal to 20 percent by 2010 would mean adding 4,200 MW of renewables over 7 years, or 600 MW (1.6 percent) per year. California is implementing the Renewable Portfolio Standard for the Investor-owned utilities in a PUC rulemaking (R.01-10-024). <sup>5</sup> The Western Electricity Coordinating Council (WECC) has established minimum operational requirements of loss-of-load probability of no more than one day in ten years. Current information suggests that the WECC criteria can be met with approximately 15 - 18 percent reserve margins. <sup>6</sup> Peak demand growth is expected to be approximately 1,400 MW per year for the next two years, depending on weather and other factors. California is evaluating statewide generation resource needs in the CEC development of the Integrated Energy Policy Report (02-IEP-01). <sup>7</sup> The CAISO in 2002 identified generation-deficient areas and sub-areas within its control area, such as the greater Bay Area, Humboldt, Battle Creek and Vaca Dixon. Although some of these constraints may be solved by transmission improvements, it may prove more cost-effective to add new generation in some areas perhaps utilizing the CPA's authority to finance new power plants.

<sup>8</sup> California is undertaking this effort in a PUC rulemaking (R.02-11-039).

Ventura County Star

Oxnard chamber's LNG vote angers some

By Charles Levin, [clevin@VenturaCountyStar.com](mailto:clevin@VenturaCountyStar.com)  
March 29, 2006

Opponents of a proposed liquefied natural gas facility off the Ventura County coast are criticizing the Oxnard Chamber of Commerce for its recent endorsement of the project.

Nancy Lindholm, the chamber's president and CEO, said members carefully researched BHP Billiton's proposed Cabrillo Port facility before reaching a decision. She cited several reasons for the endorsement, including the effect of rising energy costs on local business. Ensuring a reliable energy supply was a top concern, Lindholm said.

Liquefied natural gas is conventional natural gas chilled into liquid form, making it feasible to transport by ship.

Opponents worry that an LNG facility here could cause air pollution and provide a target for terrorists.

Friday's endorsement by the chamber came 11 days after the State Lands Commission released a 2,528-page environmental impact study on the project. The report says the Australian mining firm's plans to build a floating LNG terminal would not pose a danger to Oxnard or other communities, but an accident or attack could affect fishing areas and shipping lanes.

The chamber's government relations committee heard presentations from the company and critics on March 13. Committee members recommended approval after a follow-up discussion with a utility company, Lindholm said.

The chamber's Board of Directors voted 19-1 with one abstention to support the project, she said.

Oxnard resident Lupe Anguiano, a chamber member, said the committee and directors did not research the issue carefully enough.

"The chamber did not seem to have read or analyzed the EIR," Anguiano said.

Oxnard resident Larry Godwin, who spoke to the chamber on behalf of the opponents, agreed. "I was surprised at their lack of knowledge," Godwin said.

Lindholm said chamber officials did not read the entire EIR, but the decision was sound.

"I thought I'd do more environmental damage by printing it out than by relying on the

P361-A06-1

P361-A06-1

This is one of seven files Thomas C. Nielsen submitted on a CD to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The other six files on the CD are included as 2006 Comment Letter Attachments P361-A01, P361-A02, P361-A03, P361-A04, P361-A05, and P361-A07.



executive summary," Lindholm quipped. "I think the chamber did its due diligence."

Four companies have proposed facilities to bring LNG to Southern California. BHP Billiton's is the furthest along in the approval process among the three proposals that would directly affect Ventura County.

Tankers would carry LNG from Australia to the BHP terminal about 13.8 miles offshore, where it would be converted into conventional gas and sent to shore through a pair of pipelines.

The pipes would burrow beneath Ormond Beach at the Reliant Energy generating plant and merge there at a metering station. A new, 36-inch pipe would carry the gas to the Southern California Gas Co. facility on Center Road in Somis.

The project needs approval from the Lands Commission, the U.S. Coast Guard and the U.S. Maritime Administration. Gov. Arnold Schwarzenegger could veto the plan but has said he supports the concept.

Copyright 2006, Ventura County Star. All Rights Reserved.

Ventura County Star

## Time to get realistic about California's energy needs

By Don Facciano  
November 13, 2005

There's been more than enough back and forth between supporters and opponents of the proposed liquefied natural gas terminal off the coast of Oxnard known as Cabrillo Port.

This is a serious issue, and when the volume is turned down, you will find that both sides have advanced many reasons to support either moving ahead with the project or going in a different direction. The time has arrived, however, for both sides on this issue and residents to face hard facts about the enduring place that energy plays in our lives. Let's get realistic.

Every facet of our state and nation runs on energy. That's the way it is, and it's not going to radically change in our lifetimes. While it's essential that we conserve energy and always seek to develop cleaner and more efficient systems, the fact is, we need ever-larger supplies of natural gas to live our lives today and in the future.

This is plain talk, and the motivation behind it is a concern for our quality of life and the fiscal and financial risks we are taking by not realistically approaching this challenge. We all remember the disastrous effects of the energy crisis a few years ago. Besides the embarrassment of the lights going out, our economy suffered a serious hit, and taxpayers were forced to foot the bill at a cost of hundreds of millions of dollars.

While our state's energy crisis was a complex issue, one thing everyone should be able to agree on is the fact that California needs more and better supplies of natural gas.

Because so much of our state's electricity is derived from natural gas, it is both self-defeating and short-sighted not to do what we can to increase our supply. Domestic natural gas supplies are dwindling and California needs new sources of affordable, reliable and safe natural gas to operate our businesses, warm our homes and cook our food. No one disputes this fact, but somehow even these simple truths can get lost in a complicated discussion.

For mostly tragic reasons, the last several weeks have taught us a valuable lesson about the place that energy plays in our lives and the unacceptable fragility of our current system of generation, transmission and delivery.

Most people did not expect that a series of hurricanes in the Gulf Coast region thousands of miles away would affect our lives in so many negative ways. But, this is a fact.

P361-A07-1

### P361-A07-1

This is one of seven files Thomas C. Nielsen submitted on a CD to the California State Lands Commission as a supplement to his oral testimony provided at the Public Hearing on April 18, 2006, in Malibu, California. The other six files on the CD are included as 2006 Comment Letter Attachments P361-A01, P361-A02, P361-A03, P361-A04, P361-A05, and P361-A06.

Additionally, government officials have recently joined with PG&E and Southern California Edison in warning all of us that natural gas prices (and electricity prices as well) are likely to go up sharply because of the after effects of Hurricane Katrina. This will have a direct effect on food prices, home heating and cooling, and manufacturing activities, which means job creation and expansion. We must no longer be held captive to the current flawed energy system and to outdated preferences that nobody constructs anything anywhere anytime to expand our supply of an essential resource.

Cabrillo Port is the safest, environmentally sensitive source of LNG, and the best immediate solution to California's energy needs. Cabrillo Port is a useful and needed project that will add a diverse and new source of clean-burning natural gas to our state and region. Yet, there is an even larger issue that we as taxpayers must consider. In the past, when energy supplies did not keep up with demand, the taxpayers ended up footing the bill as prices soared.

Many of us will never forget the negative impacts to the citizens and taxpayers of Ventura County and California that occurred during the 2000-2001 energy crises such as higher electricity bills and the fear of blackouts.

In order to get out of the energy crisis, the state entered into costly long-term energy contracts. Taxpayers throughout the state are still paying for these mistakes made for years and years to come. We cannot let another energy crisis happen again. What's in it for us? More energy, more often, at a more reliably predictable price and derived from a source that benefits all Ventura County's taxpayers.

The World Series may be over, but here's a home run our leaders can hit if they will step up to the policy plate, take a brave stand and swing for the fences.

-- Don Facciano is president of the Ventura County Taxpayers Association.

Copyright 2005, Ventura County Star. All Rights Reserved.

G221

2006/G221

**Simi Valley Chamber Of Commerce and Visitor Center**

May 26, 2006

Mr. Dwight Sanders  
California State Lands Commission  
Division of Environmental Planning and Management  
100 Howe Avenue, Suite 100-South  
Sacramento, CA 95825-8202

RE: Support of Cabrillo Port LNG Terminal  
State Clearinghouse No. **2004021107**

Dear Mr. Sanders:

The Simi Valley Chamber of Commerce represents over 750 businesses that rely upon a ready supply of clean burning and efficient natural gas. We are concerned about its increasing price, and we support expanding the state's supply of natural gas.

We support the Cabrillo Port LNG facility. The facility will increase the availability of reliable energy sources, which is critical to the continued success of the business community locally as well as throughout California.

Energy costs represent an increasing expense to the business community. California should make every effort to ensure reliable supplies of needed energy including the importation of LNG.

While additional efficiencies and the use of renewable energy sources are laudable long-term solutions to our dependence on fossil fuels, the technology to apply these solutions to our needs at this point are not sufficient.

As a community-based business organization, it is our duty to carefully examine and consider the facts of projects that potentially affect our members, their ability to provide jobs in our community and the overall quality of life in the Simi Valley area. We have done the research and we hope the Cabrillo Port will be permitted and operating as soon as possible.

Sincerely,

Leigh Nixon  
President/CEO  
Simi Valley Chamber of Commerce

G221-1

Your statement is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

G221-2

Section 1.2.3 contains updated information on natural gas needs in California. Forecast information has been obtained from the California Energy Commission.

G221-1

G221-2



40 West Cochran Street, Suite 100  
Simi Valley, CA 93065  
☎ (805) 526-3900 FAX (805) 526-6234  
[www.simivalleychamber.org](http://www.simivalleychamber.org)

**From:** GeoNiznik@aol.com [mailto:GeoNiznik@aol.com]  
**Sent:** Monday, April 17, 2006 3:25 PM  
**To:** ogginsc@slc.ca.gov  
**Cc:** Kusano, Ken LT; mike.chrisman@resources.gov  
**Subject:** Liquified Gas plant for Oxnard-SOCAL Gas Facility

Dear Mr. Oggins,

I'm sure you are receiving a lot of mail from people spouting hysterical and erroneous objections to the Liquefied Natural Gas unloading site here on the Oxnard Shores. Although people here have natural gas coming into their homes for heating and cooking, the mushroom cloud mentality is still being fostered by antagonists who have an energy agenda aimed against anything that helps Americans with the energy problems we face, unless of course, it involves a windmill [however, not in their back yard].

As a resident here on the corner of Wooley and Mandalay Beach Road, within walking distance from the proposed site, I fully support the program. | P100-1

I would further add that SOCAL Gas should in some way, preferably with reduced rates, compensate the community for providing the access needed. This might also meliorate some of the tension being mustered by local malcontents.

Best regards,

***Dr. George Niznik***  
**Address: 5240 W. Wooley Rd**  
**Oxnard, CA 93035**  
**E-Mail: geoniznik@aol.com**  
**Phone: 805-382-1892**

P260

To view the responses to this letter, go to "Index--Read this First" and select "2006 Letters--Form Letter."

April 19, 2006

Dwight Sanders  
State lands commission,  
100 Howe Avenue  
Suite 100 South  
Sacramento California 95825-8202

Re: Stop Cabrillo Port LNG

Dear Mr. Sanders,

Please stop Cabrillo port LNG industrial plant from progressing any further in the permit process. California law prohibits industrial intrusion on highly scenic areas. The last remaining wild areas on the Southern California Coast will be permanently despoiled if this industrial plant is installed. In fact over 10 national parks, national recreation areas, state, city and county parks will be despoiled. This would forever impact the quality of life of the areas residents and negatively impact the millions of visitors who come to hike and enjoy the seashore. In addition, federal and state governments own studies show that this project would:

- result in both short term and long term adverse impacts to the coast and it's residents.
- Increase smog levels (tons of pollutants spewing directly upwind from our houses, beaches and hiking trails.
- contain 14 story high pollution spewing industrial towers with lines of support ships which forever will be our new horizon. This towers will be brightly lit at night being a 24 hour eye sore .
- harbor the possibility of a 14 mile wide explosive flash fire due to an accident of terrorist attack.
- be visible from all elevations in malibu from downtown Malibu all the way to Port Hueneme.
- require a "security zone" of 2.3 miles around it. (to protect from terrorism, accidents etc) which is in the same shipping channel where 10,000. container ships and oil tankers use annually.

There are many more negative impacts than the above "official" ones disclosed by the federal and state study.

PLEASE do not allow this to go forward. We, the citizens of Southern California will fight this project until it is derailed. Our money and time can be spent on projects that truly will improve the quality of life in Southern California rather than just provide an opportunity for foreign Companies to sell us gas that they and we do not need.

Sincerely,



TAMARA S. NOLAND  
27118 CARRITA ROAD.  
MALIBU CA 90265

G212

May 10, 2006

Dwight E. Sanders  
California State Lands Commission  
Div. of Environmental Planning & Management  
100 Howe Avenue, Suite 100-South  
Sacramento, CA 95825

Re: Revised Draft Environmental Impact Report for the Cabrillo Port Liquefied  
Natural Gas Deepwater Port – Santa Clarita Line 225 Loop Pipeline  
State Clearinghouse number: 2004021107

Dear Mr. Sanders


We are concerned that the map for the Santa Clarita Line 225 Loop Pipeline is not current and doesn't reflect the development that has taken place in the area. Of great concern to us is the Golden Valley High School at 27051 Robert C. Lee Parkway off the Golden Valley Road, which is not shown on your map.

Enclosed is a Thomas Guide map that shows the Golden Valley Road. The Redview Drive on your map no longer exists. This map doesn't show the Golden Valley High School site but the enclosed map from the California Environmental Protection Agency Department of Toxic Substance Control shows the school site and Golden Valley Road. So you can see that 4.13 Land Use for Santa Clarita in the Executive Summary is not correct.

Also Table ES-5, ES-78, HAZ-3, MM HAZ-3b Regarding Cleanup of Soil and Groundwater at Whittaker- Bermite Site states that Operable Unit 2 is adjacent or within the proposed pipeline route and is expected to be cleaned up by 2006. Only Operable Unit 1 has started soil remediation, and only of shallow soils. Copy of the Work Notice is enclosed.

The Golden Valley High School and surrounding homes should be a High Consequence Area and the applicant should construct and operate the pipeline at Class 3 standards. An alternate route would be better for the school and the community. The Golden Valley High School already has two Southern California Gas 30-inch high-pressure natural gas transmission lines located in front of the school in Golden Valley Road. Less than a half mile west of the Golden Valley High School Site, Southern California Gas maintains the large multi tank natural gas transfer station.

We are concerned for the safety of the students at the Golden Valley High School.

Sincerely,   
Cam Noltemeyer for the Committee for Safe Schools  
25936 Sardinia Court, Santa Clarita, CA 91355

G212-1

Thank you for the information. The enclosures sent with this letter are included as 2006 Comment Letter Attachment G212-A01.

Figure 4.13-4 shows new major roads and the location of Golden Valley High School. The area surrounding Golden Valley High School is rapidly developing. Section 4.13.1.4 contains information on sensitive land uses in the vicinity of the Line 225 Pipeline Loop, which is approximately 0.25 mile (0.4 km) from Golden Valley High School.

G212-2

Thank you for the information. Impact HAZ-3 in Section 4.12.4 has been updated. Line 225 Pipeline Loop would follow the southern edge of the Whittaker-Bermite site, adjacent to both OU 1 and OU 2.

G212-3

The design, construction, and operation of natural gas facilities are highly regulated; the U.S. Department of Transportation's (USDOT) Pipeline and Hazardous Materials Safety Administration and the California Public Utilities Commission's Division of Safety and Reliability have jurisdiction over pipelines. The proposed pipelines within Santa Clarita city limits would meet standards that are more stringent than those of existing pipelines because they would meet the minimum design criteria for a USDOT Class 3 location.

G212-1

G212-2

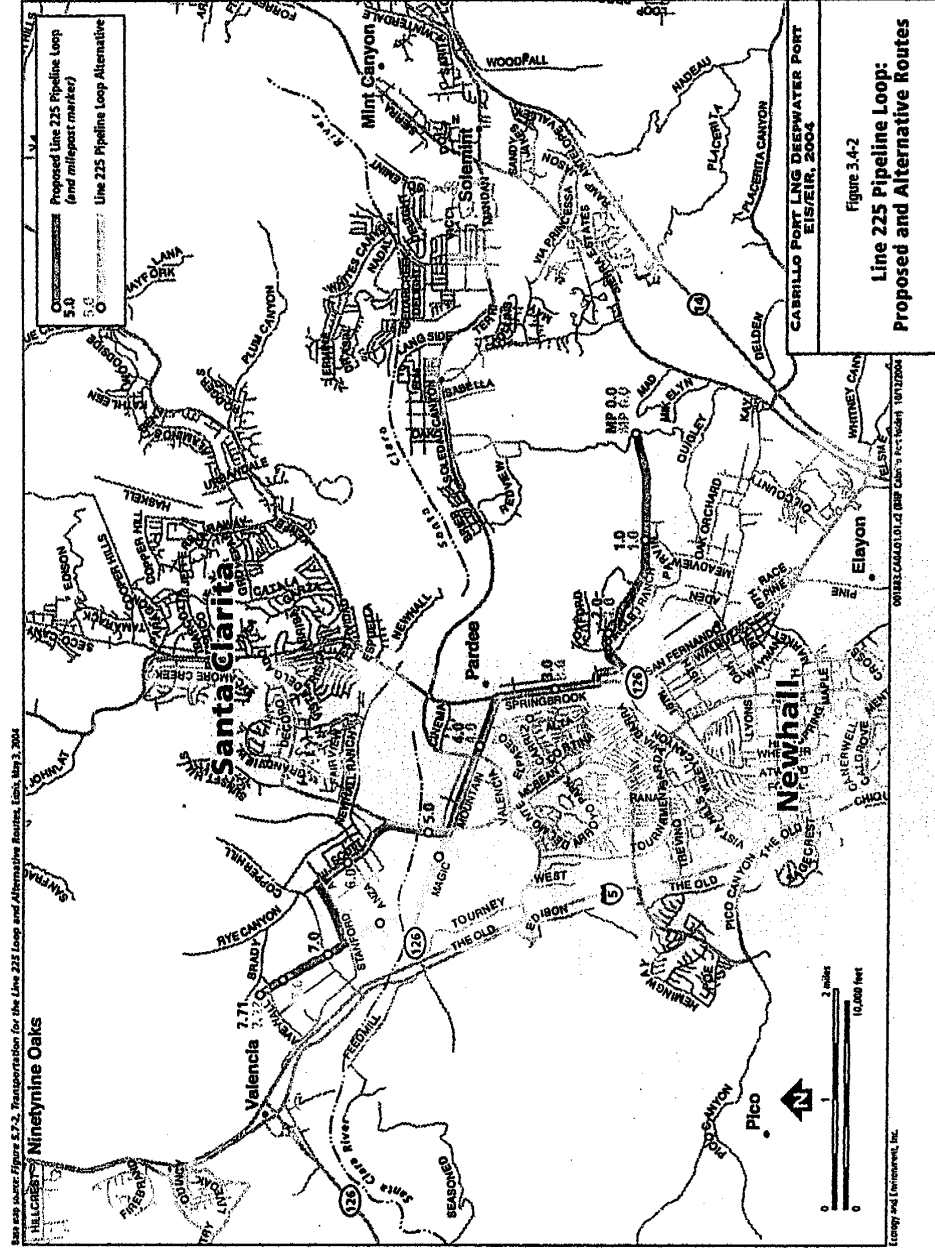
G212-3

G212-4

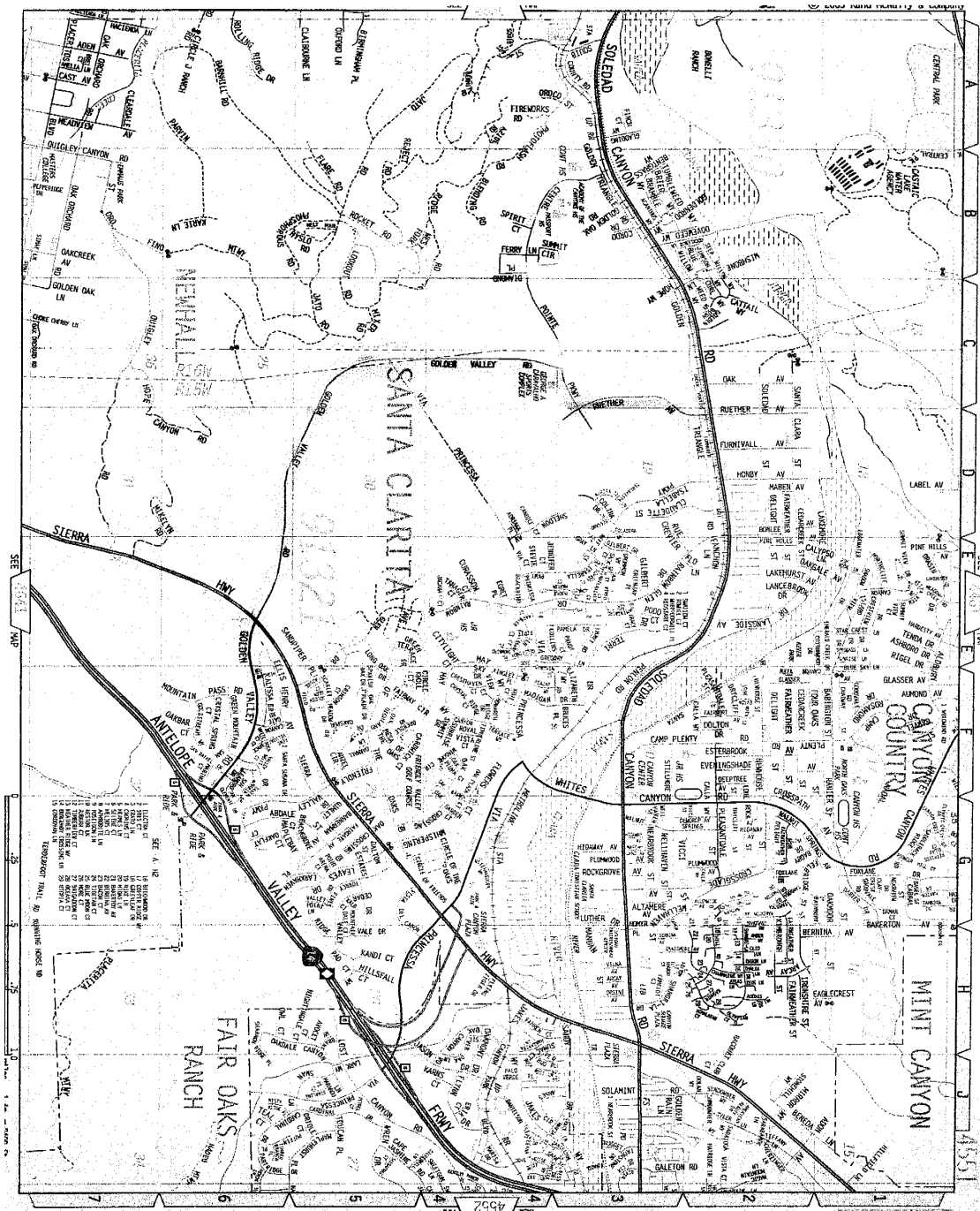
Section 4.2.8.4 and Appendix C3 contain information on the determination of high consequence areas (HCAs) as defined in 49 CFR 192.903. Table 4.2-19 summarizes preliminary identification of HCAs along the proposed Project pipeline route using the potential impact radius established by the USDOT for various types of pipelines and gas pressures. The potential impact radius for the Line 225 Loop Pipeline, as identified in Table 4.2-19, is 605 feet (184 m). The Golden Valley High School is approximately 0.25 mile (0.4 km) from the proposed pipeline route; therefore, the school and the surrounding homes do not meet the criteria for an HCA because they are too far away.

G212-4

Your statement is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

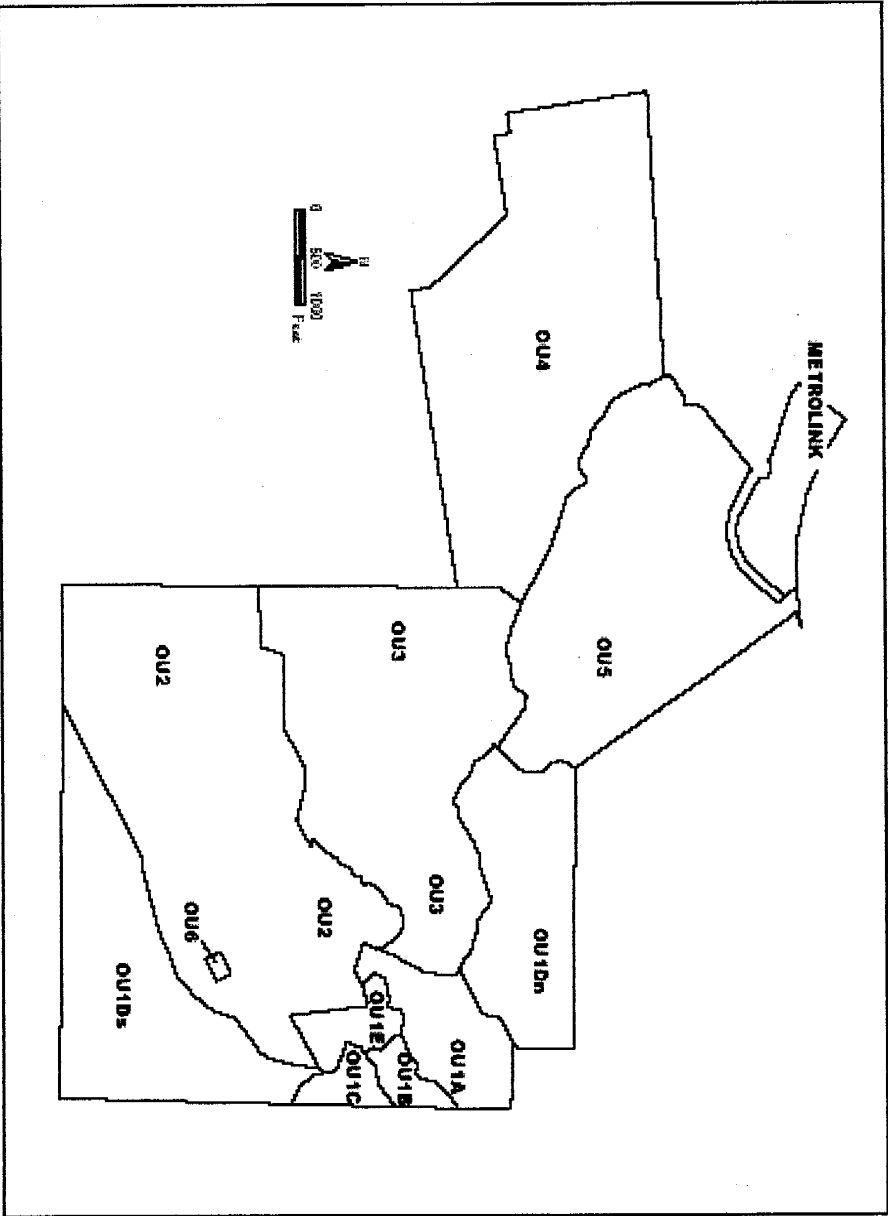






Thomas Guide 2005







## Department of Toxic Substances Control

Alan C. Lloyd, Ph.D.  
Agency Secretary  
Cal/EPA

1011 North Grandview Avenue  
Glendale, California 91201



Arnold Schwarzenegger  
Governor

# WORK NOTICE

## Operable Unit 1 - Soil Remediation

Whittaker-Bermite Facility  
22116 West Soledad Canyon Road  
Santa Clarita, California

**Soil remediation will begin on March 22, 2006 and is expected to be completed by September 2007.**

The Department of Toxic Substances Control (DTSC) will oversee the first phase of soil remediation activities in a portion of the site known as Operable Unit 1 (OU1). OU1 is located along the eastern portion of the site bordering Golden Valley Road. (See figure)

This phase only involves the excavation and onsite treatment of shallow soils by a licensed contractor. In most areas excavation will extend to an average depth of 10 feet and in two areas to a maximum depth of 40 feet. Deeper soils and groundwater contamination will be addressed in future Remedial Action Plans.

Treatment methods include soil bioremediation, a process similar to composting, and soil washing. At this time, we do not anticipate transporting soil to off-site treatment facilities. If a determination is made during the remediation process that soil needs to be hauled off-site, the community will be notified.

Precautions will be taken to ensure that the public and the environment are not exposed to contamination during the remediation process. The soil will be kept moist to prevent dust from blowing. Continuous air monitoring will also be conducted to ensure that the public is not exposed to dust emissions from the site. A site Health and Safety Plan has been developed to protect workers on-site from harmful exposure.

For more information regarding this remediation process, please refer to the OU1 Remedial Action Plan (RAP) approved by DTSC located on the Whittaker-Bermite website at [www.bermite.com](http://www.bermite.com). Copies of the OU1 RAP are also available at the following locations:

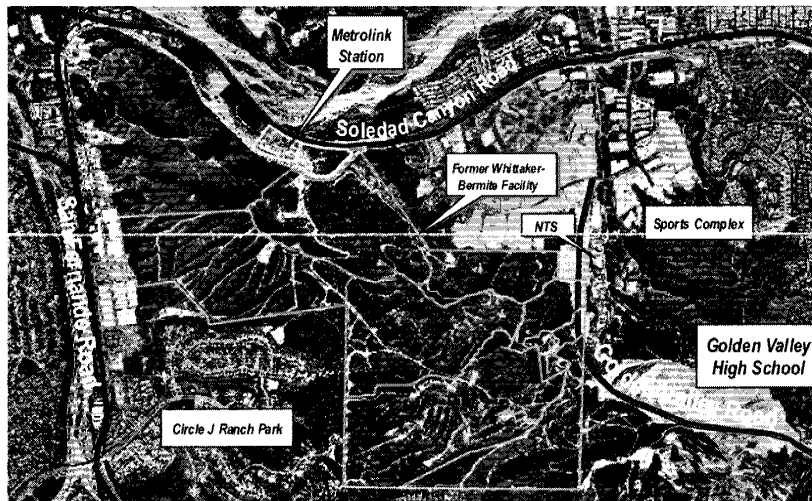
DTSC – Fileroom	Santa Clarita Public Library
1011 North Grandview Avenue	18601 Soledad Canyon Road
Glendale, California 91201	Santa Clarita, California
Contact: Jone Barrio – (818) 551-2886	Contact: (661) 251-2720

It is not expected that any impacts to traffic will occur during this process. Street closures will not be necessary during this remediation process.

***If you have any questions regarding this fieldwork please contact:***

<b>Jose Diaz</b> <b>Project Manager</b> Department of Toxic Substances Control (818) 551-2171 <a href="mailto:jdiaz@dtsc.ca.gov">jdiaz@dtsc.ca.gov</a>	<b>Yvette LaDuke</b> <b>Public Participation Specialist</b> Department of Toxic Substances Control (818) 551-2909 <a href="mailto:yladuke@dtsc.ca.gov">yladuke@dtsc.ca.gov</a>
--	--

**Media inquiries: Jeanne Garcia, DTSC Public Information Officer - (818) 551-2176**



May 8, 2006

Mr. Dwight Sanders  
 California State Lands Commission  
 Division of Environmental Planning and Management  
 100 Howe Avenue, Suite 100-South  
 Sacramento, CA 95825-8202  
**By Fax: 916-574-1885**  
**By Email: BHPRevisedDEIR@slc.ca.gov**

RE: Cabrillo Port LNG Terminal  
 State Clearinghouse **No. 2004021107**

Dear Mr. Sanders:

The Valley Industrial Association (VIA) represents major industrial and commercial businesses throughout the Santa Clarita Valley. The VIA board voted at its April 26, 2006 meeting to support California's efforts to expand its supply of natural gas and the important role the Cabrillo Port project can play in helping meet that need.

Cabrillo Port will provide needed new supplies of natural gas to California and support the state's clean energy and clean air goals. Our members and residents throughout the Santa Clarita Valley rely on clean burning and efficient natural gas. We are concerned about the on-going market pressures impacting natural gas prices and supplies.

VIA is glad that the revised draft environmental impact report recently released is responsive to earlier public comment and contains additional data from numerous studies and recent surveys concerning biological resources, water resources, endangered species, oak tress, cultural resources, and other related issues. We are also glad that Cabrillo and local gas utility officials will monitor impacts related to the natural gas pipeline construction process, an issue important to our members and the City of Santa Clarita.

Our members and area residents need additional supplies of natural gas, California needs an LNG delivery option, and we hope that the Cabrillo Port LNG project can be permitted and operated as soon as possible.

Sincerely,

Kathy Norris  
 Executive Director

G008-1

Your statement is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

G008-2

Section 1.2.3 contains updated information on natural gas needs in California. Forecast information has been obtained from the California Energy Commission.

G008-1

G008-2

**From:** Donna Nowland [nowland@adelphia.net]  
**Sent:** Friday, May 12, 2006 6:03 PM  
**To:** BHPRevisedDEIR@slc.ca.gov  
**Subject:** State Clearinghouse #2004021107 / CSLC EIR 727 - Revised Draft  
Environmental Impact Report / Statement for the Cabrillo Port Liquefied Natural Gas  
Deepwater Port.

Donna Nowland

961 South La Luna Avenue  
Ojai, CA 93023-3513  
nowland@adelphia.net  
805/ 646-3750

May 12, 2006

Mr. Dwight E. Sanders  
California State Lands Commission  
100 Howe Avenue, Suite 100-South  
Sacramento, CA 95825

RE: State Clearinghouse #2004021107 / CSLC EIR 727 – Revised Draft Environmental Impact  
Report / Statement for the Cabrillo Port Liquefied Natural Gas Deepwater Port.

Dear Mr. Sanders,

Usually, I passively watch businesses, agencies, public and media work their way through the various projects that require public review and comment. The proposed Cabrillo Port project is different for me. I am a Ventura County native who lived in Malibu through my college years. It has been decades since an energy project of this scale and scope has been proposed in our coastal waters. Considering the energy supply and demand challenges facing the United States and California, new energy projects are needed.

I have read through the first draft EIR/S, revised draft EIR/S and related documents, attended two public hearings in Oxnard, as well as pursued additional information regarding fears and issues raised by concerned people throughout the process. Now I understand exactly what BHP Billiton is proposing, it is time for me to register my support for the approval of the revised draft EIR/S for the Cabrillo Port project.

As you well know, there are a number of people who hold on to fears about this project, what may or may not occur in the future and telescoping the possible risks. The proposed project document responds appropriately to the CEQA and NEPA requirements. I urge approval of the revised draft document, so BHP Billiton can proceed with this needed energy project.

Sincerely yours,

Donna Nowland

V056-1

Your statement is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

V056-1